CCD-TR1E
RMT-703

SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model
Tourist Model

video Hi8
Handycam

FL MECHANISM

SONY
8x
Handycam

Remote commander is available as a unit. But as individual parts the battery case lid of commander is only avaiable.

CCD-TR1E is based on model CCD-TR8E.

〔 Main differences 〕
- Color View Finder is carried.
- The VF-55 and VF-56 boards have been changed to the VF-59, VF-60 and FF-66 boards.

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅱ " (9-972-705-11).

In this service manual, only the differences from CCD-TR8E (9-973-319-12) are mentioned.
When servicing, see the CCD-TR8E service manual with this.

SPECIFICATIONS

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed	SP mode: Approx. 20.051 mm (13/16 in)/second LP modo: Approx 10.058 mm (13/32 in)/second
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8.5 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (color)
Lens	Combined 8 x power zoom lens f=5.9 to 47.2 mm (1/4 to 1 7/8 inches) 42 to 336 mm (1 11/16 to 13 1/4 inches) when converted into a 35-mm still camera F 1.4 to 2.2 Filter diameter 37 mm (1 1/2 inches) TTL autofocus system inner focus wide macro system
Colour temperature	Auto
Minimum illumination	3 lx (F 1.4)
Illumination range	3 lx to 100,000 lx
Recommended illumination	More than 100 lx

— Continued on next page —

Hi8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

Input and output connectors

S video output (AEP, UK model)
S video input/output (E, Australian, Tourist model)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced,
Video output (AEP, UK model)
Video input/output (E, Australian, Tourist model)
Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output (AEP, UK model)
Phono jacks (2: stereo L and R), −7.5 dBs, (at load impedance 47 kilohms)
impedance less than 2.2 kilohms
Audio input/output (E, Australian, Tourist model)
Phone jacks (2: stereo L and R),
input: −7.5 dBs, input impedance more than 47 kilohms
Output: −7.5 dBs, (at load impedance 47 kilohms)
impedance less than 2.2 kilohms
These above three connectors are automatically selectable according to the operation.
RFU DC OUT
Special mini-jack, DC 5 V
Headphones jack
Stereo mini-jack (ø 3.5)
Remote jack Stereo mini-mini-jack (ø 2.5)
MIC jack Stereo mini-jack, −66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 kilohms (ø 3.5)
MIC DC OUT Special minijack, DC 5 V
Handycam Station terminal
20pin special connector

General

Power requirements
7.2 V (battery pack)
6.5 V (AC power adaptor)
Power consumption
5.3 W (camera recording) including the viewfinder
Installation Vertically, Horizontally
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
−20°C to +60°C (−4°F to 140°F)
Dimensions Approx. 92x102x173 mm (w/h/d)
(3 5/8 x 4 1/8 x 6 3/4 inches)
Mass Approx. 680 g (1 lb 8 oz) excluding the battery pack, lithium battery, cassette, and shoulder strap
Approx. 860 g (1 lb 14 oz) including the battery pack NP-500, lithium battery CR2025, cassette E5-60, and shoulder strap
Microphone Electret condenser microphone, stereo type

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Design and specifications are subject to change without notice.

TABLE OF CONTENTS

Section Title Page

2. DISASSEMBLY

2-7. Removal of EVF Assembly (VF-59, VF-60, FF-66 Boards) ······ 3

3. DIAGRAMS

3-1. Circuit Boards Location ······ 4
3-2. Overall Block Diagram ······ 5
3-5. Video Block Diagram ······ 9
3-6. Servo/System Control Block Diagram ······ 11
3-12. Color EVF Block Diagram ······ 13
3-13. Power Block Diagram ······ 17

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram ······ 21
4-2. Printed Wiring Boards and Schematic Diagrams ······ 25
- VC-129 (Camera, Video, Servo/system Control), DB-10 Boards ······ 26
- VC-129 (Video 3 (I/O)) Board ······ 29
- VC-129 (Servo Control (SS)), FP-423 Boards ······ 31
- VF-59, VF-60, FF-66 Boards ······ 33

4-3. Semiconductors ······ 44

5. EXPLODED VIEWS

5-1. Cabinet (L) and F Panel Assemblies ······ 45
5-2. Cabinet (R) Assembly ······ 46
5-3. Main Boards Assembly ······ 47

6. ELECTRICAL PARTS LIST ······ 48

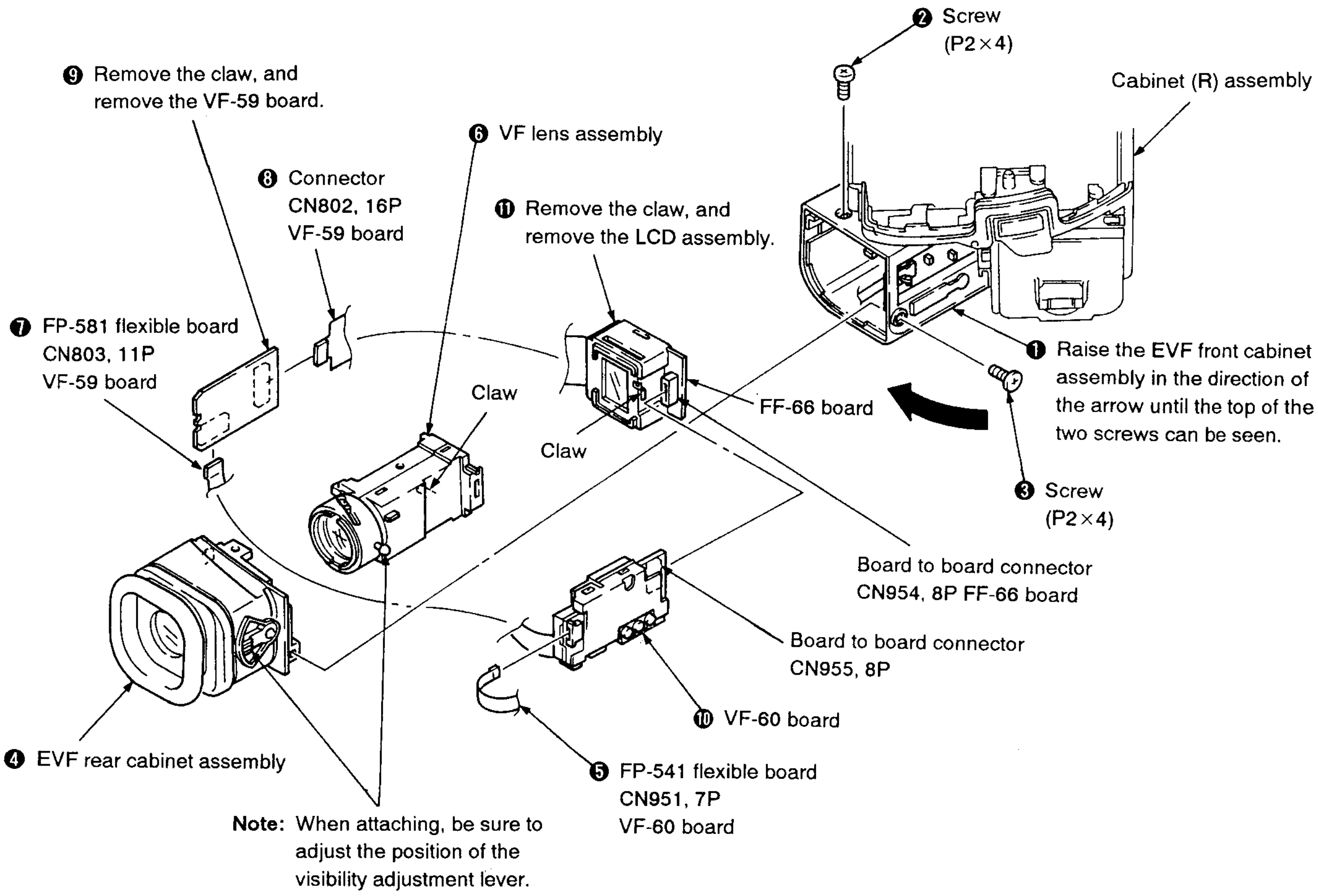
Difference table of VC-129 Board ······ 51

7. CAMERA SECTION ADJUSTMENTS

7-1. Electronic Viewfinder System Adjustments ······ 52
1. Current consumption adjustment (VF-60 board) ······ 53
2. Power supply voltage check (VF-59 board) ······ 53
3. VCO adjustment (VF-59 board) ······ 54
4. LC COM voltage adjustment (VF-59 board) ······ 54
5. BRIGHT adjustment (VF-60 board) ······ 55
6. CONTRAST check (VF-59 board) ······ 55
7. SUB BRIGHT R preset adjustment (VF-59 board) ······ 56
8. SUB BRIGHT B preset adjustment (VF-59 board) ······ 56
9. White balance adjustment (VF-59 board) ······ 57

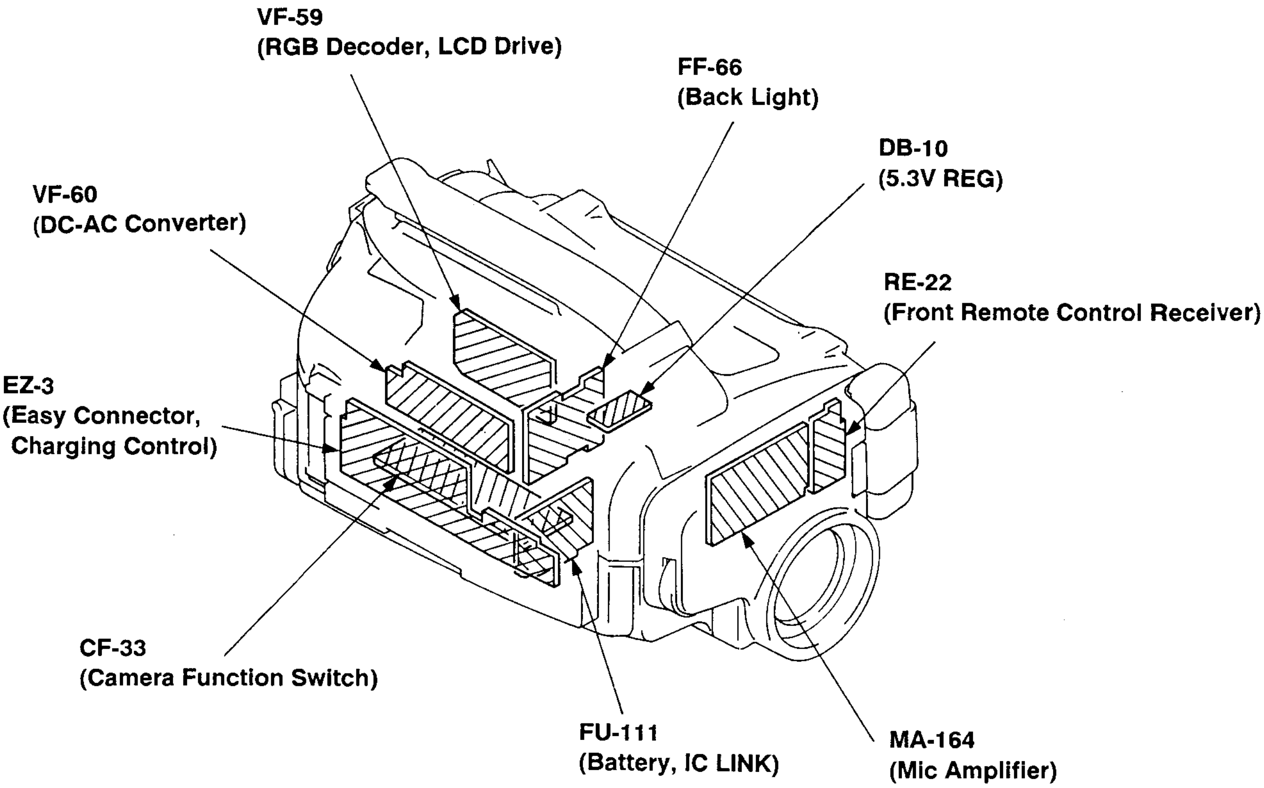
SECTION 2
DISASSEMBLY

2-7. REMOVAL OF EVF ASSEMBLY (VF-59, VF-60, FF-66 BOARDS)


❷ Screw (P2×4)
Cabinet (R) assembly
❾ Remove the claw, and remove the VF-59 board.
❻ VF lens assembly
❽ Connector CN802, 16P VF-59 board
⓫ Remove the claw, and remove the LCD assembly.
❼ FP-581 flexible board CN803, 11P VF-59 board
Claw
FF-66 board
Claw
❶ Raise the EVF front cabinet assembly in the direction of the arrow until the top of the two screws can be seen.
❸ Screw (P2×4)
Board to board connector CN954, 8P FF-66 board
Board to board connector CN955, 8P
❿ VF-60 board
❹ EVF rear cabinet assembly
❺ FP-541 flexible board CN951, 7P VF-60 board
Note: When attaching, be sure to adjust the position of the visibility adjustment lever.

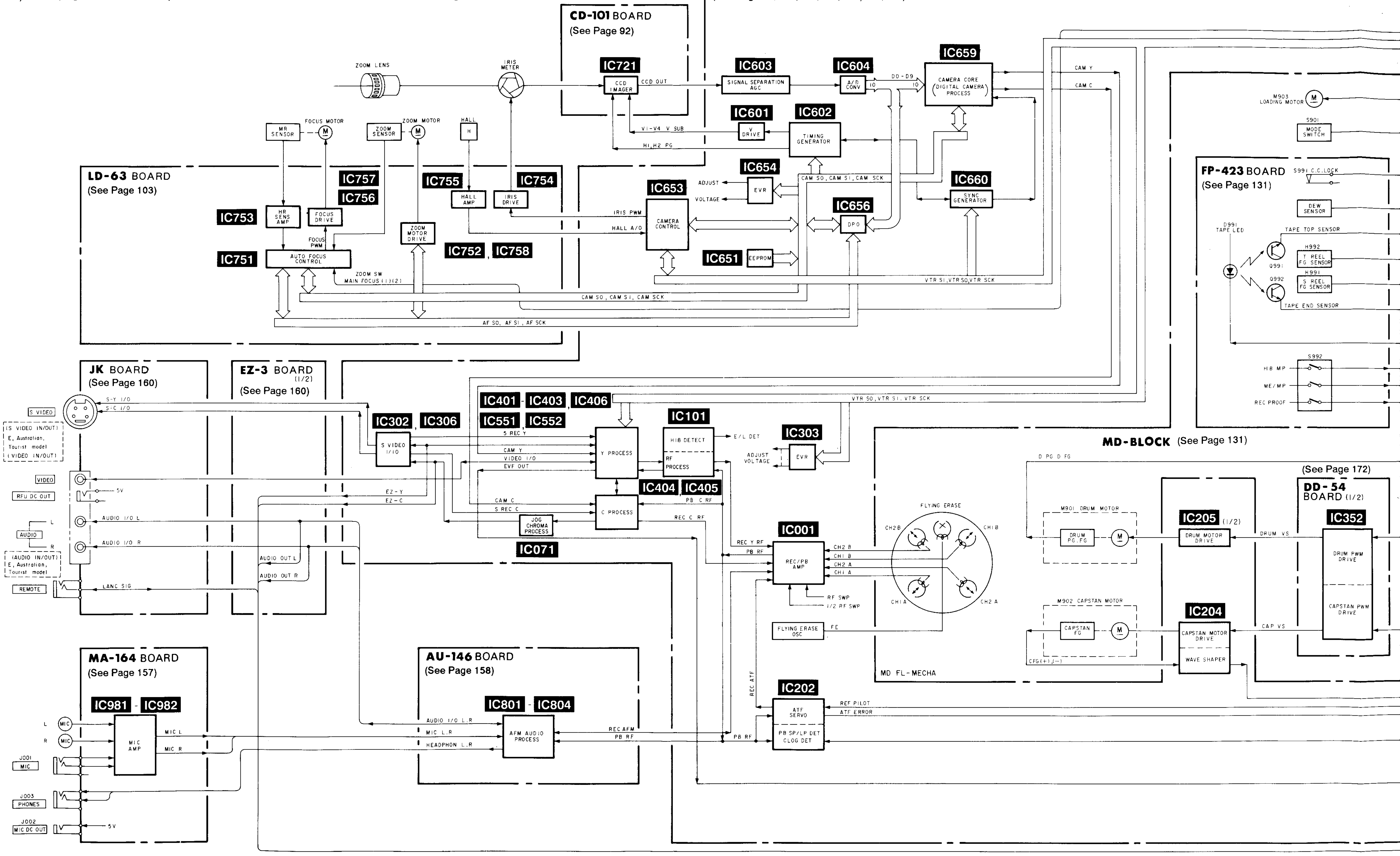
SECTION 3
DIAGRAMS

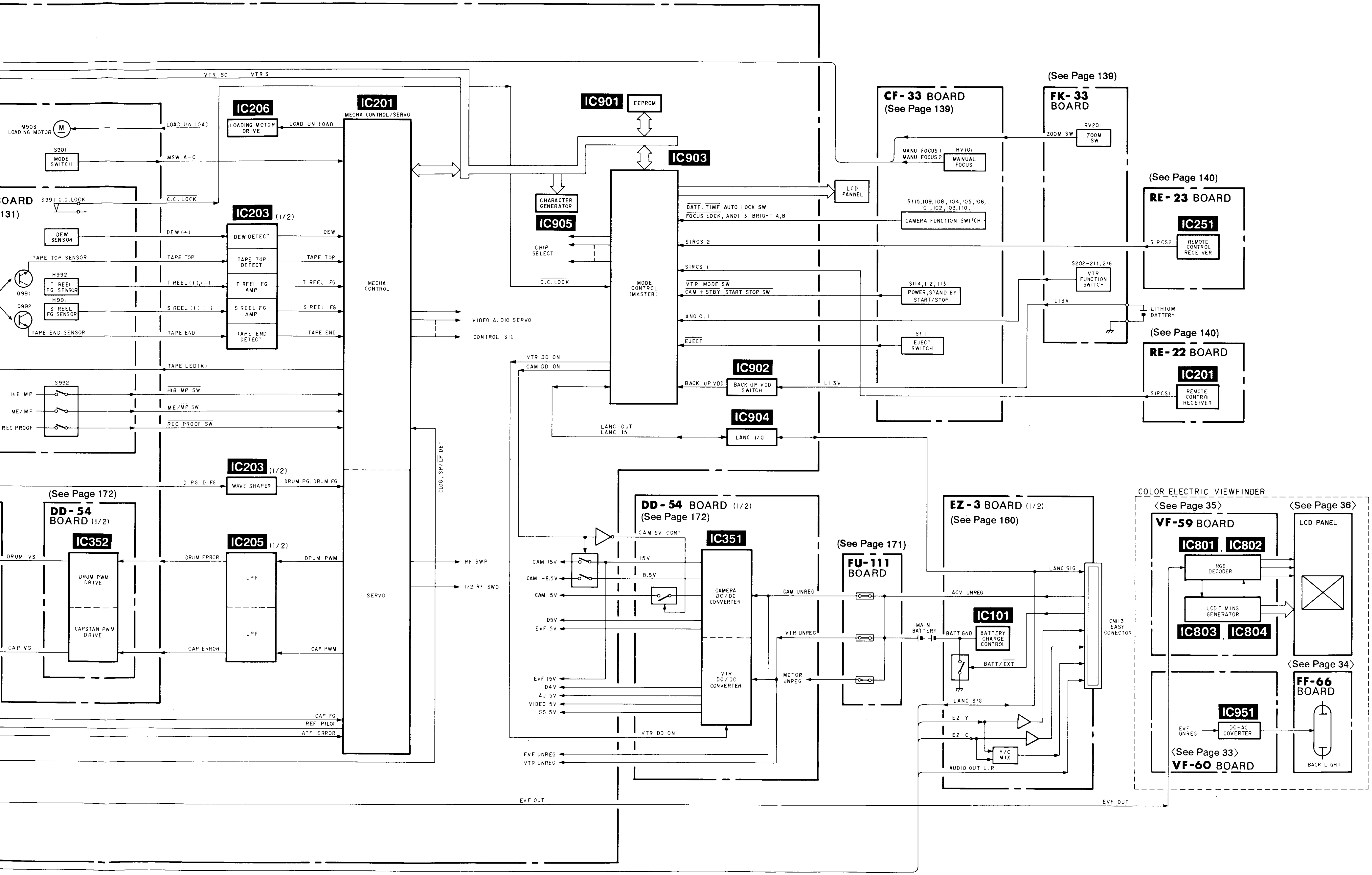
3-1. CIRCUIT BOARDS LOCATION


VF-59
(RGB Decoder, LCD Drive)
FF-66
(Back Light)
DB-10
(5.3V REG)
VF-60
(DC-AC Converter)
RE-22
(Front Remote Control Receiver)
EZ-3
(Easy Connector,
Charging Control)
CF-33
(Camera Function Switch)
FU-111
(Battery, IC LINK)
MA-164
(Mic Amplifier)

3-2. OVERALL BLOCK DIAGRAM

(   ) : The pages above correspond to CCD-TR8E SERVICE MANUAL, 〈   〉 : Pages of CCD-TR1E.

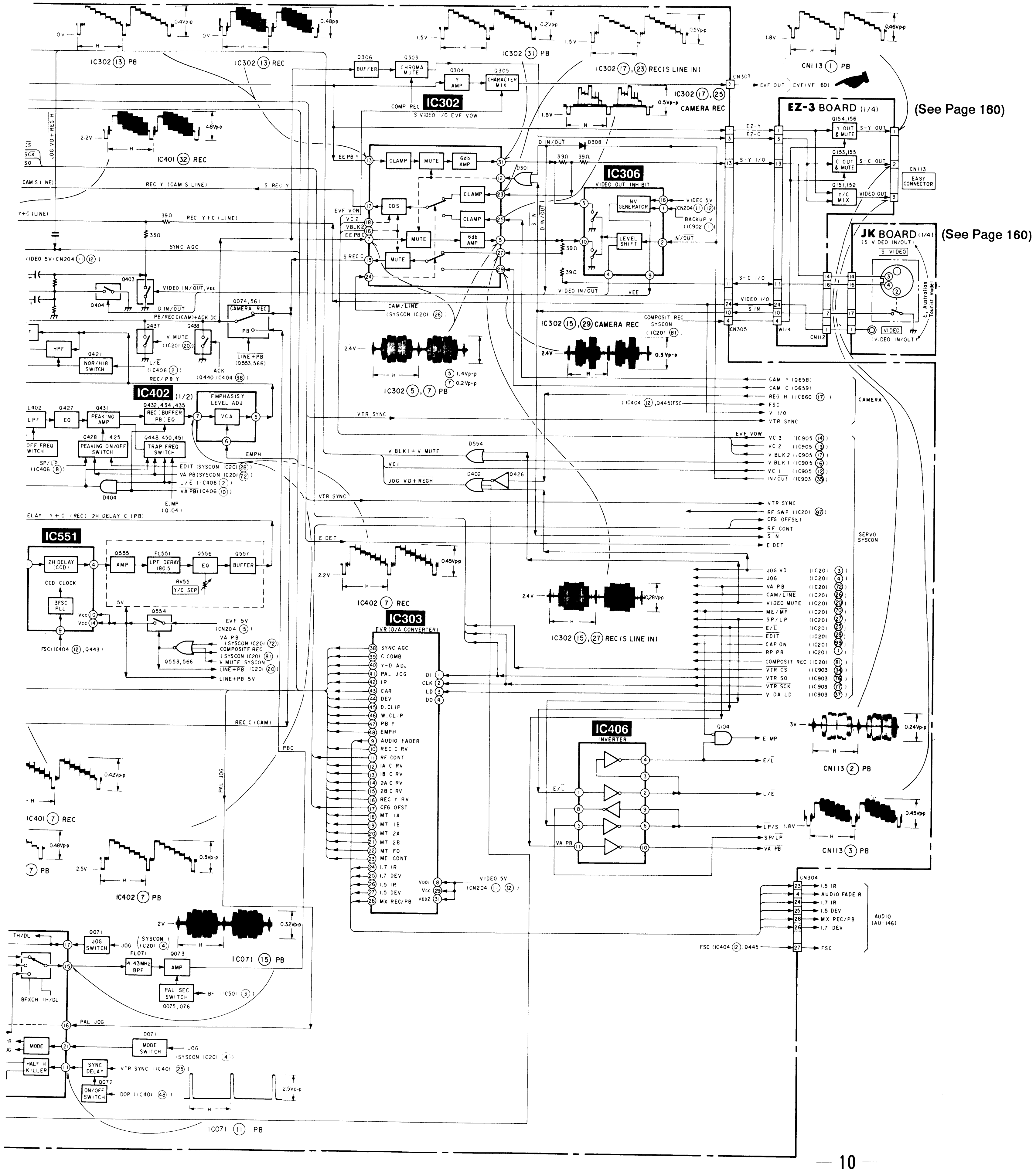

VC-129 BOARD 〈See Page 29, 32〉
(See Page 94, 118, 121, 126, 132, 136, 174)
CD-101 BOARD
(See Page 92)
IC721
CCD IMAGER
CCD OUT
ZOOM LENS
IRIS METER
IC603
SIGNAL SEPARATION AGC
IC604
A/D CONV
D0 - D9
IC659
CAMERA CORE (DIGITAL CAMERA PROCESS)
CAM Y
CAM C
IC601
V DRIVE
IC602
TIMING GENERATOR
V1 - V4 V SUB
H1, H2 PG
FOCUS MOTOR
MR SENSOR
ZOOM SENSOR
ZOOM MOTOR
HALL
H
LD-63 BOARD
(See Page 103)
IC757
IC756
IC755
IC754
IC753
HR SENS AMP
FOCUS DRIVE
HALL AMP
IRIS DRIVE
ZOOM MOTOR DRIVE
FOCUS PWM
IC751
AUTO FOCUS CONTROL
IC752
IC758
ZOOM SW
MAIN FOCUS (1)(2)
IC654
EVR
ADJUST
VOLTAGE
IC653
CAMERA CONTROL
IRIS PWM
HALL A/D
CAM SO, CAM SI, CAM SCK
IC660
SYNC GENERATOR
IC656
DPO
IC651
EEPROM
VTR SI, VTR SO, VTR SCK
AF SO, AF SI, AF SCK
M903 LOADING MOTOR
S901
MODE SWITCH
FP-423 BOARD
(See Page 131)
S991 C.C.LOCK
DEW SENSOR
D991 TAPE LED
TAPE TOP SENSOR
Q991
Q992
H992 T REEL FG SENSOR
H991 S REEL FG SENSOR
TAPE END SENSOR
S992
HI8 MP
ME/MP
REC PROOF
JK BOARD
(See Page 160)
S VIDEO
(S VIDEO IN/OUT) E, Australian, Tourist model (VIDEO IN/OUT)
S-Y I/O
S-C I/O
VIDEO
RFU DC OUT
5V
AUDIO
L
R
(AUDIO IN/OUT) E, Australian, Tourist model
AUDIO I/O L
AUDIO I/O R
REMOTE
LANC SIG
EZ-3 BOARD (1/2)
(See Page 160)
IC302
IC306
S VIDEO I/IO
EZ-Y
EZ-C
AUDIO OUT L
AUDIO OUT R
IC401 - IC403, IC406
IC551
IC552
Y PROCESS
5 REC Y
CAM Y
VIDEO I/O
EVF OUT
CAM C
S REC C
IC404, IC405
C PROCESS
JOG CHROMA PROCESS
IC071
IC101
HI8 DETECT
RF PROCESS
E/L DET
IC303
EVR
ADJUST VOLTAGE
PB C RF
REC C RF
MD-BLOCK (See Page 131)
D PG D FG
IC001
REC/PB AMP
REC Y RF
PB RF
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE
FLYING ERASE OSC
FE
MD FL-MECHA
M901 DRUM MOTOR
DRUM PG, FG
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM VS
(See Page 172)
DD-54 BOARD (1/2)
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
M902 CAPSTAN MOTOR
CAPSTAN FG
IC204
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CFG (+), (−)
REC ATF
IC202
ATF SERVO
PB SP/LP DET CLOG DET
REF PILOT
ATF ERROR
PB RF
MA-164 BOARD
(See Page 157)
IC981 - IC982
MIC AMP
MIC L
MIC R
MIC
J001 MIC
J003 PHONES
J002 MIC DC OUT
5V
AU-146 BOARD
(See Page 158)
IC801 - IC804
AFM AUDIO PROCESS
AUDIO I/O L.R
MIC L.R
HEADPHONE L.R
REC AFM
PB RF


VTR SO
VTR SI
IC206
LOADING MOTOR DRIVE
LOAD.UN LOAD
M903 LOADING MOTOR
M
S901 MODE SWITCH
MSW A-C
OARD
131)
S991 C.C.LOCK
C.C.LOCK
IC203 (1/2)
DEW SENSOR
DEW(+)
DEW DETECT
DEW
TAPE TOP SENSOR
TAPE TOP
TAPE TOP DETECT
H992
T REEL FG SENSOR
T REEL(+),(−)
T REEL FG AMP
T REEL FG
Q991
H991
Q992
S REEL FG SENSOR
S REEL(+),(−)
S REEL FG AMP
S REEL FG
TAPE END SENSOR
TAPE END
TAPE END DETECT
TAPE LED(K)
S992
HIB MP
ME/MP
REC PROOF
HIB MP SW
ME/MP SW
REC PROOF SW
IC203 (1/2)
D PG.D FG
WAVE SHAPER
DRUM PG.DRUM FG
(See Page 172)
DD-54 BOARD (1/2)
IC352
DRUM VS
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
CAP VS
IC205 (1/2)
DRUM ERROR
LPF
DPUM PWM
CAP ERROR
CAP PWM
CAP FG
REF PILOT
ATF ERROR
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
VIDEO AUDIO SERVO
CONTROL SIG
CLOG, SP/LP DET
RF SWP
1/2 RF SWD
IC901
EEPROM
IC903
CHARACTER GENERATOR
IC905
CHIP SELECT
C.C.LOCK
MODE CONTROL (MASTER)
LCD PANNEL
DATE. TIME AUTO LOCK SW
FOCUS LOCK, ANOI 3, BRIGHT A,B
SIRCS 2
SIRCS 1
VTR MODE SW
CAM ⇌ STBY, START STOP SW
ANO 0,1
EJECT
VTR DD ON
CAM DD ON
BACK UP VDD
IC902
BACK UP VDD SWITCH
LI 3V
IC904
LANC OUT
LANC IN
LANC I/O
CF-33 BOARD
(See Page 139)
MANU FOCUS 1
MANU FOCUS 2
RV101
MANUAL FOCUS
S115,109,108,104,105,106,101,102,103,110,
CAMERA FUNCTION SWITCH
S114,112,113
POWER,STAND BY START/STOP
S111
EJECT SWITCH
(See Page 139)
FK-33 BOARD
RV201
ZOOM SW
ZOOM SW
S202-211,216
VTR FUNCTION SWITCH
LI3V
LITHIUM BATTERY
(See Page 140)
RE-23 BOARD
IC251
SIRCS2
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
IC201
SIRCS1
REMOTE CONTROL RECEIVER
DD-54 BOARD (1/2)
(See Page 172)
CAM 5V CONT
IC351
CAM 15V
CAM −8.5V
CAM 5V
15V
−8.5V
CAMERA DC/DC CONVERTER
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
VTR DC/DC CONVERTER
VTR DD ON
FVF UNREG
VTR UNREG
CAM UNREG
VTR UNREG
MOTOR UNREG
(See Page 171)
FU-111 BOARD
EZ-3 BOARD (1/2)
(See Page 160)
LANC SIG
ACV UNREG
IC101
MAIN BATTERY
BATT GND
BATTERY CHARGE CONTROL
BATT/EXT
CN113 EASY CONECTOR
LANC SIG
EZ Y
EZ C
Y/C MIX
AUDIO OUT L.R
EVF OUT
EVF OUT
COLOR ELECTRIC VIEWFINDER
〈See Page 35〉
VF-59 BOARD
IC801, IC802
RGB DECODER
LCD TIMING GENERATOR
IC803, IC804
〈See Page 36〉
LCD PANEL
〈See Page 34〉
FF-66 BOARD
IC951
EVF UNREG
DC-AC COVERTER
〈See Page 33〉
VF-60 BOARD
BACK LIGHT

3-5. VIDEO BLOCK DIAGRAM (See Page 49–53)

☛ : Changed Portion

( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL.


IC302
S VIDEO I/O EVF VOW
IC306
VIDEO OUT INHIBIT
IC402 (1/2)
IC551
IC303
EVR(D/A CONVERTER)
IC406
INVERTER
EZ-3 BOARD (1/4)
(See Page 160)
JK BOARD (1/4)
(See Page 160)
CN303
CN304
CN305
CN113
EASY CONNECTOR
CAMERA
SERVO SYSCON
AUDIO (AU-146)
IC302 ⑬ PB
IC302 ⑬ REC
IC302 ㉛ PB
IC302 ⑰, ㉓ REC (S LINE IN)
IC302 ⑰, ㉓ CAMERA REC
CN113 ① PB
IC401 ㉜ REC
IC302 ⑤, ⑦ PB
IC302 ⑮, ㉙ CAMERA REC
IC402 ⑦ REC
IC302 ⑮, ㉗ REC (S LINE IN)
CN113 ② PB
CN113 ③ PB
IC401 ⑦ REC
IC402 ⑦ PB
IC071 ⑮ PB
IC071 ⑪ PB

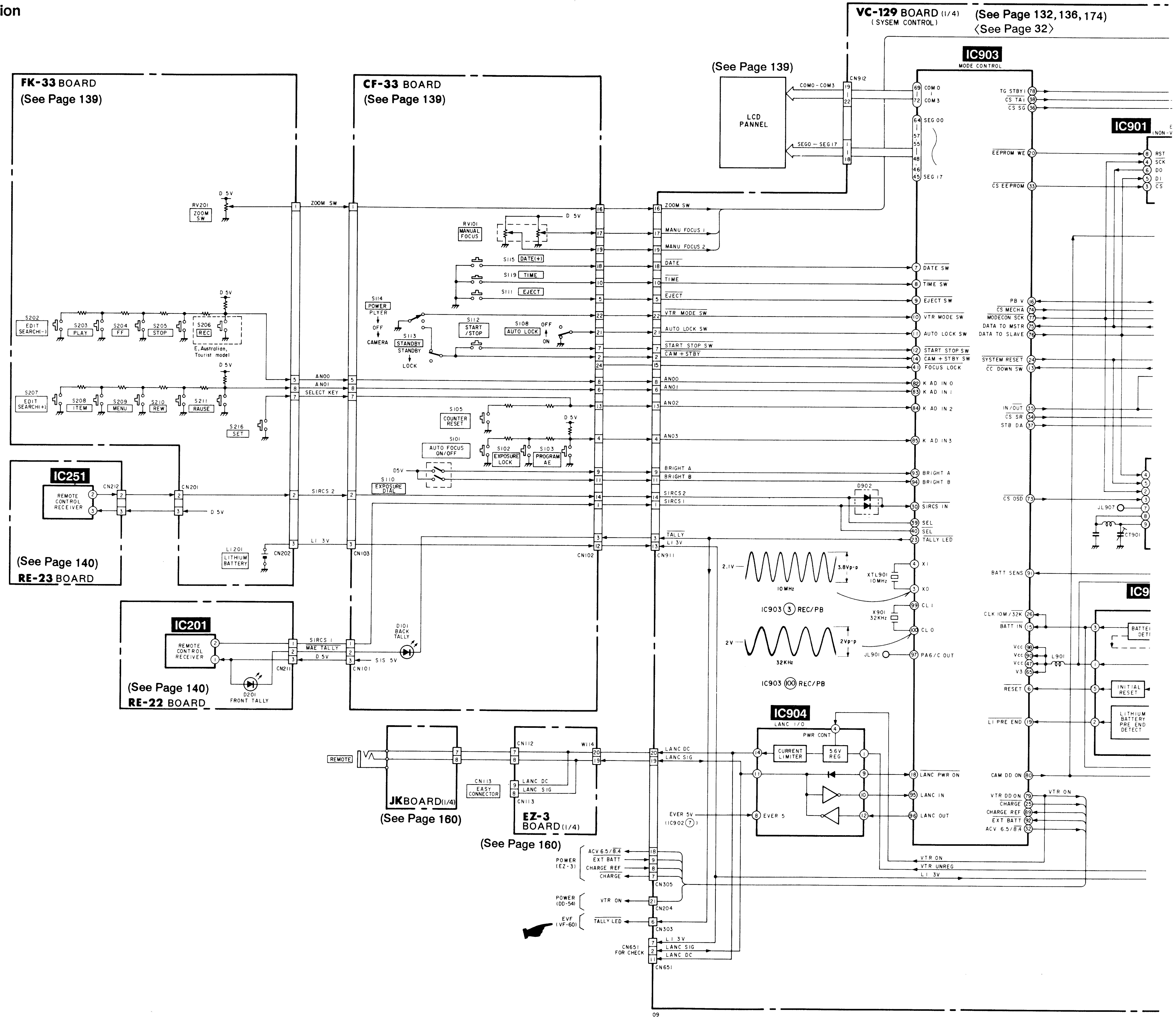
3-6. SERV

☛ : Char

3-6. SERVO/SYSTEM CONTROL BLOCK DIAGRAM (See Page 54–58)

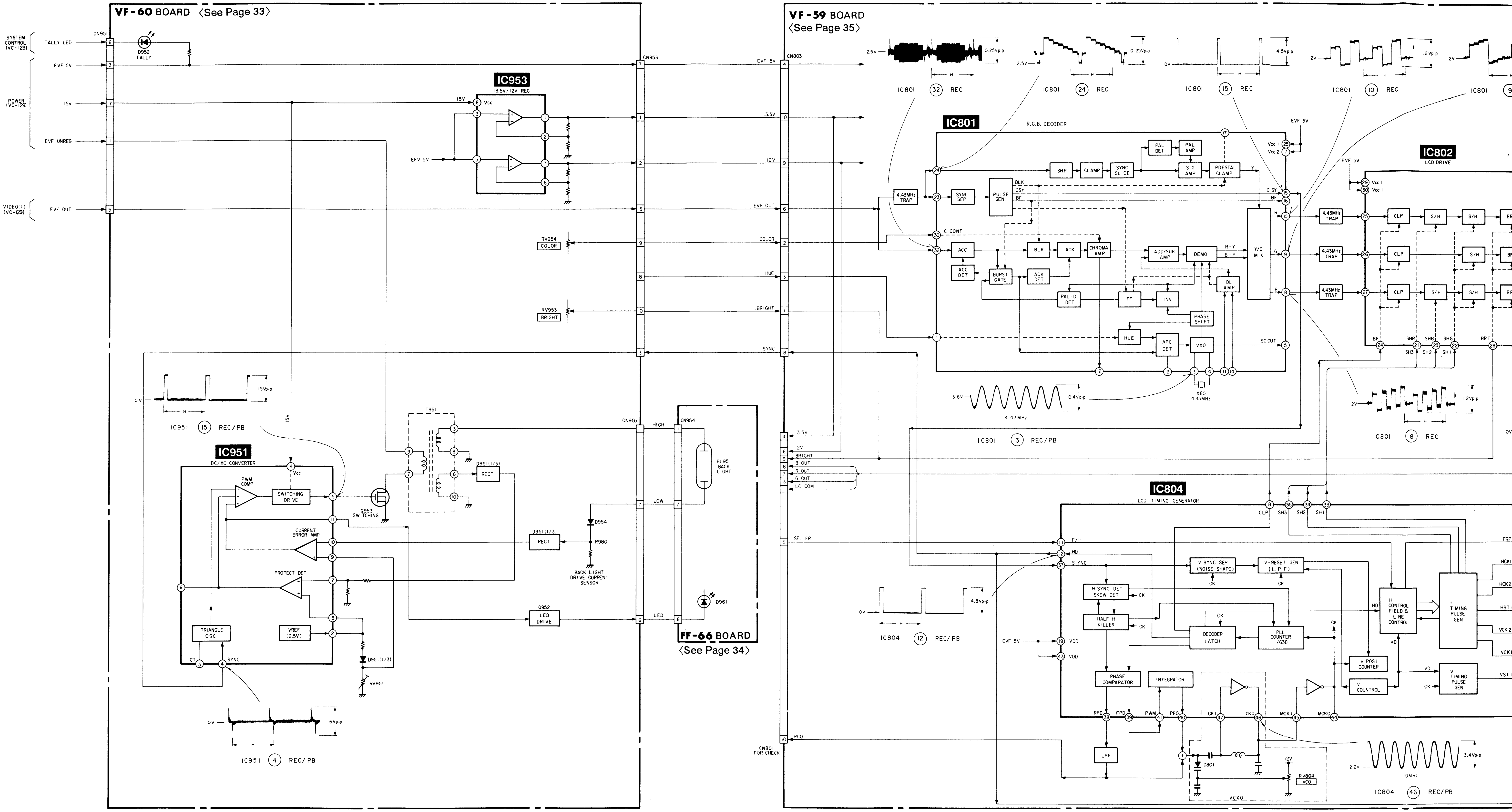
( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL, 〈 〉 : Pages of CCD-TR1E.

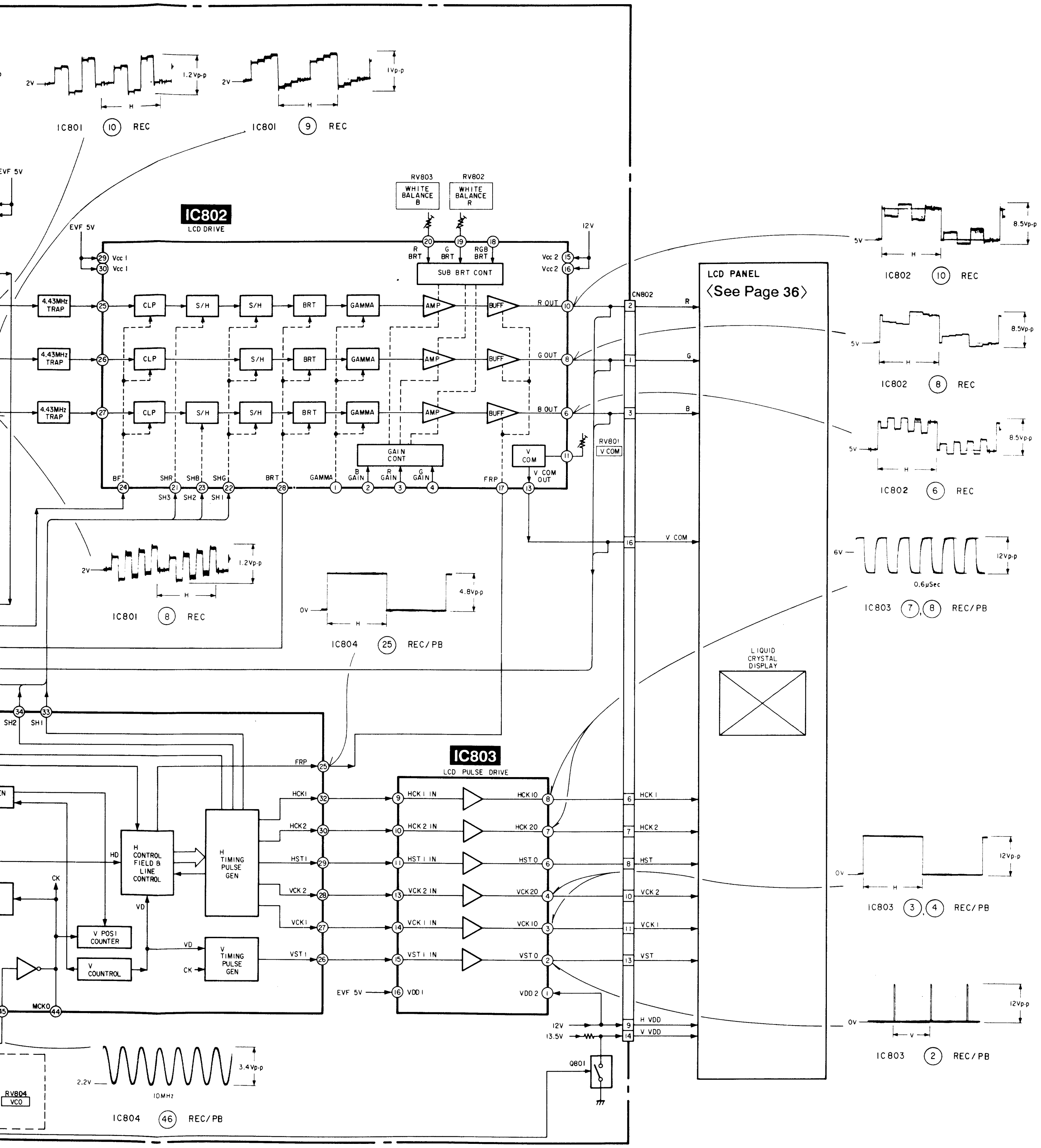
☛ : Changed Portion


VC-129 BOARD (1/4) (SYSEM CONTROL)
(See Page 132, 136, 174)
〈See Page 32〉
FK-33 BOARD
(See Page 139)
CF-33 BOARD
(See Page 139)
(See Page 139)
LCD PANNEL
IC903
MODE CONTROL
IC901
IC251
REMOTE CONTROL RECEIVER
(See Page 140)
RE-23 BOARD
IC201
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
IC904
LANC I/O
CURRENT LIMITER
5.6V REG
JK BOARD (1/4)
(See Page 160)
EZ-3 BOARD (1/4)
(See Page 160)
REMOTE
EASY CONNECTOR
ZOOM SW
MANUAL FOCUS
DATE(+)
TIME
EJECT
POWER
START /STOP
AUTO LOCK
STANDBY
EDIT SEARCH(-)
PLAY
FF
STOP
REC
EDIT SEARCH(+)
ITEM
MENU
REW
PAUSE
SET
COUNTER RESET
AUTO FOCUS ON/OFF
EXPOSURE LOCK
PROGRAM AE
EXPOSURE DIAL
LITHIUM BATTERY
BACK TALLY
FRONT TALLY
10MHz
IC903 ③ REC/PB
32KHz
IC903 ⑩⓪ REC/PB
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
POWER (EZ-3)
POWER (DD-54)
EVF (VF-60)
CN651 FOR CHECK
09

3-12. COLOR EVF BLOCK DIAGRAM

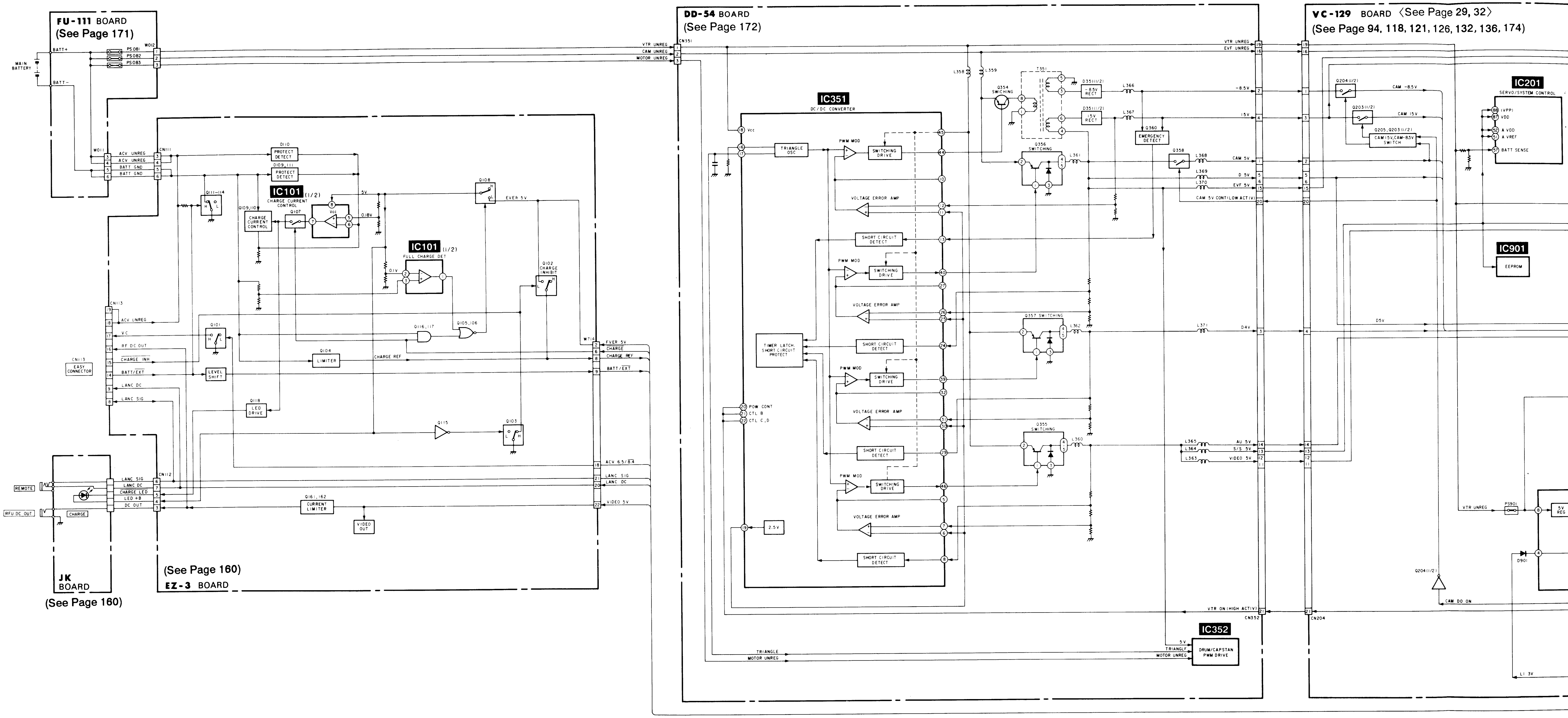
〈 〉: The pages above correspond to CCD-TR1E SERVICE MANUAL.

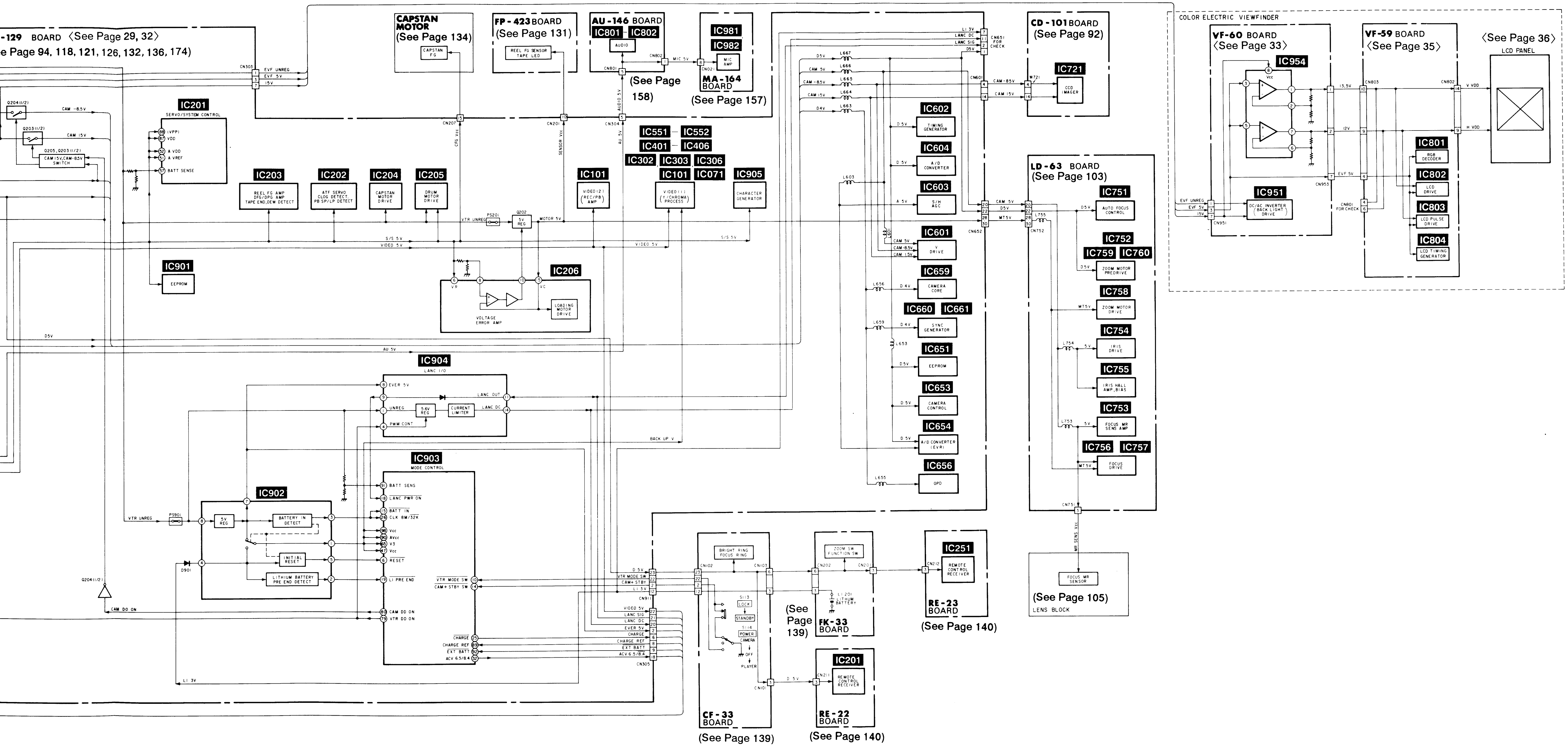

VF-60 BOARD 〈See Page 33〉
SYSTEM CONTROL (VC-129)
TALLY LED
POWER (VC-129)
EVF 5V
15V
EVF UNREG
VIDEO(1) (VC-129)
EVF OUT
CN951
D952 TALLY
IC953
13.5V/12V REG
Vcc
EFV 5V
CN953
RV954 COLOR
RV953 BRIGHT
IC951 ⑮ REC/PB
15Vp-p
IC951
DC/AC CONVERTER
PWM COMP
SWITCHING DRIVE
CURRENT ERROR AMP
PROTECT DET
TRIANGLE OSC
VREF (2.5V)
SYNC
Q953 SWITCHING
T951
D951(1/3) RECT
D954
R980
BACK LIGHT DRIVE CURRENT SENSOR
Q952 LED DRIVE
D951(1/3)
RV951
IC951 ④ REC/PB
6Vp-p
CN955
HIGH
LOW
LED
CN954
BL951 BACK LIGHT
D961
FF-66 BOARD 〈See Page 34〉
VF-59 BOARD 〈See Page 35〉
CN803
EVF 5V
13.5V
12V
EVF OUT
COLOR
HUE
BRIGHT
SYNC
IC801 ㉜ REC
IC801 ㉔ REC
IC801 ⑮ REC
IC801 ⑩ REC
0.25Vp-p
4.5Vp-p
1.2Vp-p
IC801
R.G.B. DECODER
4.43MHz TRAP
SYNC SEP
PULSE GEN.
BLK
CSY
BF
SHP
CLAMP
SYNC SLICE
PAL DET
PAL AMP
SIG AMP
PDESTAL CLAMP
C. CONT
ACC
ACC DET
BURST GATE
ACK
ACK DET
CHROMA AMP
ADD/SUB AMP
DEMO
R-Y
B-Y
Y/C MIX
DL AMP
PAL ID DET
FF
INV
PHASE SHIFT
HUE
APC DET
VXO
SC OUT
X801 4.43MHz
IC801 ③ REC/PB
0.4Vp-p
IC802
LCD DRIVE
Vcc 1
Vcc 2
CLP
S/H
BRT
SHR
SHB
SHG
SH3
SH2
SH1
IC801 ⑧ REC
B OUT
R OUT
G OUT
LC COM
SEL FR
PCO
CN801 FOR CHECK
IC804
LCD TIMING GENERATOR
F/H
HD
S SYNC
V SYNC SEP (NOISE SHAPE)
V-RESET GEN (L.P.F)
H SYNC DET SKEW DET
HALF H KILLER
DECODER LATCH
PLL COUNTER 1/638
H CONTROL FIELD & LINE CONTROL
H TIMING PULSE GEN
V POSI COUNTER
V CONTROL
V TIMING PULSE GEN
PHASE COMPARATOR
INTEGRATOR
LPF
VDD
RPD
FPD
PWM
PEO
CKI
CKO
MCKI
MCKO
D801
RV804 VCO
VCXO
IC804 ⑫ REC/PB
4.8Vp-p
IC804 ㊻ REC/PB
3.4Vp-p
10MHz
FRP
HCK1
HCK2
HST1
VCK2
VCK1
VST1


IC802
LCD DRIVE
IC803
LCD PULSE DRIVE
RV803 WHITE BALANCE B
RV802 WHITE BALANCE R
EVF 5V
12V
Vcc 1
Vcc 2
R BRT
G BRT
RGB BRT
SUB BRT CONT
4.43MHz TRAP
CLP
S/H
BRT
GAMMA
AMP
BUFF
R OUT
G OUT
B OUT
GAIN CONT
V COM
V COM OUT
RV801 V.COM
BF
SHR
SHB
SHG
SH3
SH2
SH1
GAMMA
B GAIN
R GAIN
G GAIN
FRP
CN802
R
G
B
V.COM
LCD PANEL
⟨See Page 36⟩
LIQUID CRYSTAL DISPLAY
HCK1
HCK2
HST1
VCK2
VCK1
VST1
HCK 1 IN
HCK 2 IN
HST 1 IN
VCK 2 IN
VCK 1 IN
VST 1 IN
HCK 10
HCK 20
HST 0
VCK 20
VCK 10
VST 0
VDD 1
VDD 2
H VDD
V VDD
12V
13.5V
Q801
H CONTROL FIELD & LINE CONTROL
H TIMING PULSE GEN
V TIMING PULSE GEN
V POSI COUNTER
V CONTROL
HD
VD
CK
MCKO
RV804 VCO
IC801 ⑩ REC
IC801 ⑨ REC
IC801 ⑧ REC
IC804 ㉕ REC/PB
IC804 ㊻ REC/PB
IC802 ⑩ REC
IC802 ⑧ REC
IC802 ⑥ REC
IC803 ⑦,⑧ REC/PB
IC803 ③,④ REC/PB
IC803 ② REC/PB
1.2Vp-p
1Vp-p
8.5Vp-p
12Vp-p
4.8Vp-p
3.4Vp-p
0.6μSec
10MHz
2V
2.2V
5V
6V
0V
H
V

3-13. POWER BLOCK DIAGRAM

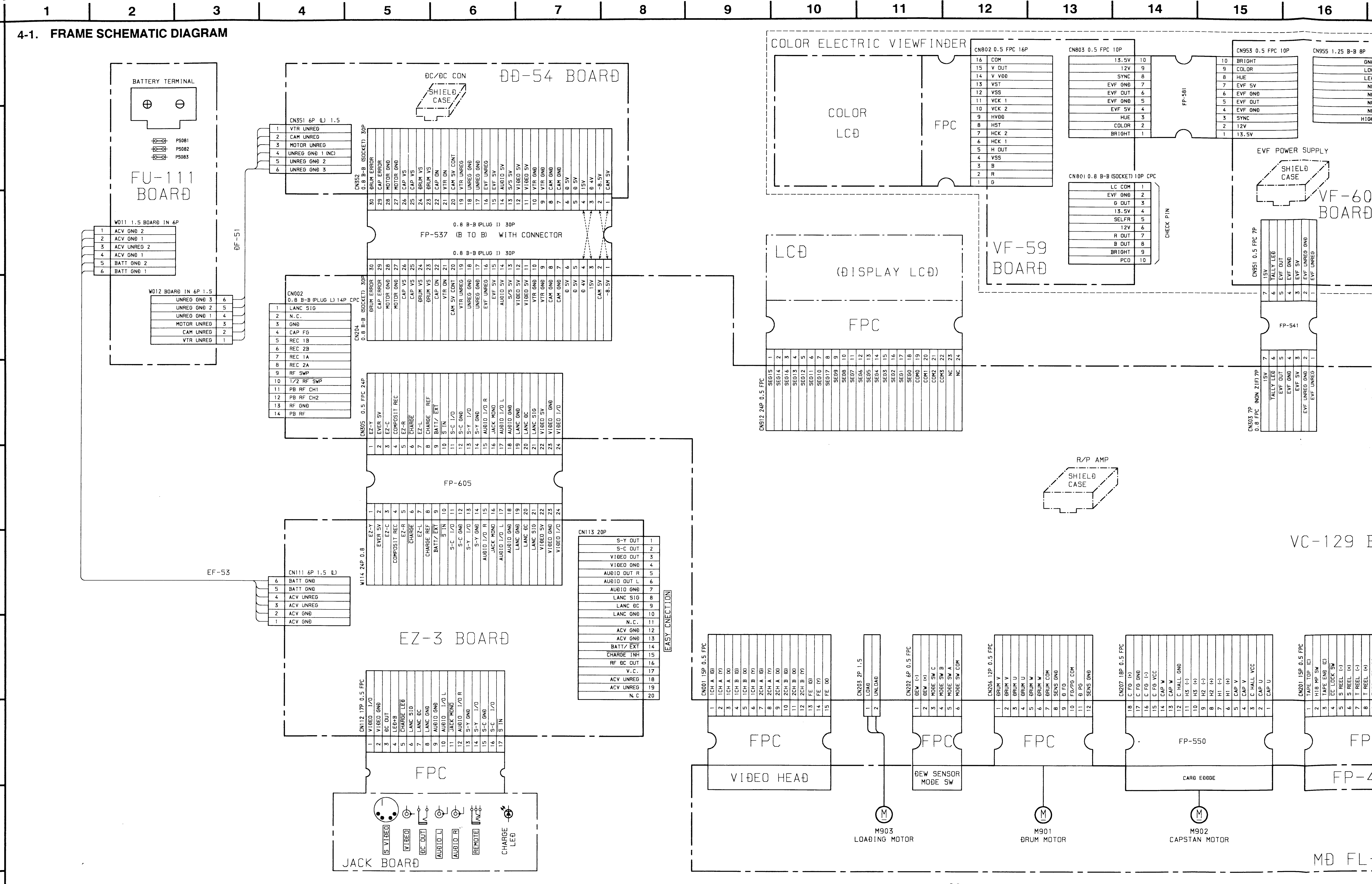
(   ) : The pages above correspond to CCD-TR8E SERVICE MANUAL, 〈   〉: Pages of CCD-TR1E.


FU-111 BOARD
(See Page 171)
MAIN BATTERY
BATT+
BATT-
PS081
PS082
PS083
W012
W011
CN111
ACV UNREG
BATT GND
D110 PROTECT DETECT
D109, 111 PROTECT DETECT
IC101 (1/2) CHARGE CURRENT CONTROL
Q107
Q109, 110 CHARGE CURRENT CONTROL
Q111-114
Q108
EVER 5V
5V
0.18V
IC101 (1/2) FULL CHARGE DET
0.1V
Q102 CHARGE INHIBIT
Q101
Q116, 117
Q105, 106
Q104 LIMITER
CHARGE REF
LEVEL SHIFT
Q118 LED DRIVE
Q115
Q103
CN113
EASY CONNECTOR
VC
RF DC OUT
CHARGE INH
BATT/EXT
LANC DC
LANC SIG
W714
CHARGE
ACV 6.5/8.4
VIDEO 5V
CN112
REMOTE
RFU DC OUT
CHARGE
CHARGE LED
LED +B
DC OUT
Q161, 162 CURRENT LIMITER
VIDEO OUT
JK BOARD
(See Page 160)
(See Page 160)
EZ-3 BOARD
DD-54 BOARD
(See Page 172)
CN351
VTR UNREG
CAM UNREG
MOTOR UNREG
EVF UNREG
IC351
DC/DC CONVERTER
Vcc
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
TIMER LATCH, SHORT CIRCUIT PROTECT
PWM CONT
CTL B
CTL C, D
2.5V
L358
L359
Q354 SWITCHING
T351
D351 (1/2) -8.5V RECT
D351 (1/2) 15V RECT
L366
L367
Q360
EMERGENCY DETECT
Q356 SWITCHING
L361
Q358
L368
L369
L370
-8.5V
15V
CAM 5V
D 5V
EVF 5V
CAM 5V CONT (LOW ACTIV)
Q357 SWITCHING
L362
L371
D4V
Q355 SWITCHING
L360
L365
L364
L363
AU 5V
S/S 5V
VIDEO 5V
VTR ON (HIGH ACTIV)
CN352
IC352
DRUM/CAPSTAN PWM DRIVE
TRIANGLE
VC-129 BOARD 〈See Page 29, 32〉
(See Page 94, 118, 121, 126, 132, 136, 174)
IC201
SERVO/SYSTEM CONTROL
Q204 (1/2)
CAM -8.5V
Q203 (1/2)
CAM 15V
Q205, Q203 (1/2)
CAM 15V, CAM -8.5V SWITCH
VPP
VDD
A VDD
A VREF
BATT SENSE
IC901
EEPROM
D5V
VTR UNREG
PS901
5V REG
D901
Q204 (1/2)
CAM DD ON
CN204
LI 3V

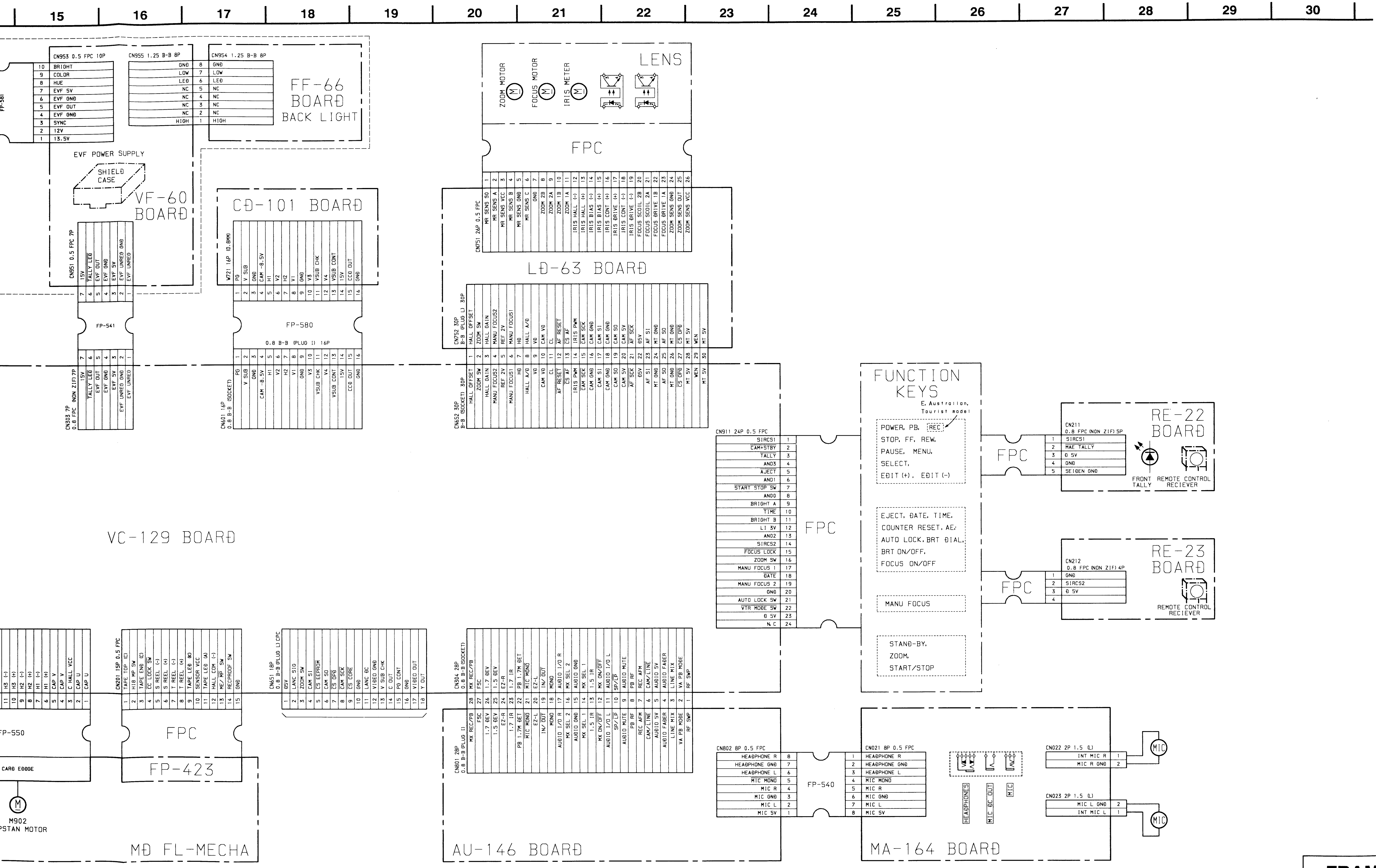

-129 BOARD 〈See Page 29, 32〉
e Page 94, 118, 121, 126, 132, 136, 174)
CAPSTAN MOTOR
(See Page 134)
CAPSTAN FG
FP-423 BOARD
(See Page 131)
REEL FG SENSOR TAPE LED
AU-146 BOARD
IC801 IC802
AUDIO
(See Page 158)
IC981
IC982
MIC AMP
MA-164 BOARD
(See Page 157)
MIC 5V
CN303
EVF UNREG
EVF 5V
15V
IC201
SERVO/SYSTEM CONTROL
VPP
VDD
A VDD
A VREF
BATT SENSE
Q204(1/2)
Q203(1/2)
Q205,Q203(1/2)
CAM 15V,CAM-8.5V SWITCH
CAM -8.5V
CAM 15V
IC203
REEL FG AMP DFG/DPG AMP TAPE END,DEW DETECT
IC202
ATF SERVO CLOG DETECT. PB SP/LP DETECT
IC204
CAPSTAN MOTOR DRIVE
IC205
DRUM MOTOR DRIVE
IC101
VIDEO(2) (REC/PB) AMP
IC551 IC552
IC401 IC406
IC302 IC303 IC306
IC101 IC071
VIDEO(1) (Y/CHROMA) PROCESS
IC905
CHARACTER GENERATOR
CN207
CFG Vcc
CN201
SENSOR Vcc
CN304
AU 5V
VTR UNREG
PS201
Q202
5V REG
MOTOR 5V
S/S 5V
VIDEO 5V
IC901
EEPROM
IC206
VR
Vcc
VOLTAGE ERROR AMP
LOADING MOTOR DRIVE
D5V
AU 5V
IC904
LANC I/O
EVER 5V
UNREG
5.6V REG
CURRENT LIMITER
PWM CONT
LANC OUT
LANC DC
BACK UP V
IC903
MODE CONTROL
BATT SENS
LANC PWR ON
BATT IN
CLK 8M/32K
Vcc
AVcc
V3
RESET
LI PRE END
CAM DD ON
VTR DD ON
VTR MODE SW
CAM+STBY SW
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
CN305
IC902
VTR UNREG
PS901
5V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D901
Q204(1/2)
CAM DD ON
LI 3V
CN911
D 5V
VIDEO 5V
LANC SIG
LANC DC
EVER 5V
LI 3V
BRIGHT RING FOCUS RING
CN102
CN103
S113 LOCK STANDBY
S114 POWER CAMERA OFF PLAYER
CN101
CF-33 BOARD
(See Page 139)
ZOOM SW FUNCTION SW
CN202
CN201
LI201 LITHIUM BATTERY
(See Page 139)
FK-33 BOARD
IC251
REMOTE CONTROL RECEIVER
CN212
RE-23 BOARD
(See Page 140)
IC201
REMOTE CONTROL RECEIVER
CN211
RE-22 BOARD
(See Page 140)
LI 3V
LANC DC
LANC SIG
D5V
CN651 FOR CHECK
D5V
CAM 5V
CAM -8.5V
CAM 15V
D4V
L667
L666
L665
L664
L663
CN601
IC602
TIMING GENERATOR
IC604
A/D CONVERTER
IC603
S/H AGC
IC601
V DRIVE
IC659
CAMERA CORE
IC660 IC661
SYNC GENERATOR
IC651
EEPROM
IC653
CAMERA CONTROL
IC654
A/D CONVERTER (EVR)
IC656
OPD
L603
L656
L659
L653
L655
CN652
CD-101 BOARD
(See Page 92)
IC721
CCD IMAGER
W721
CAM -8.5V
CAM 15V
LD-63 BOARD
(See Page 103)
CAM 5V
D5V
MT5V
CN752
L755
IC751
AUTO FOCUS CONTROL
IC752
IC759 IC760
ZOOM MOTOR PREDRIVE
IC758
ZOOM MOTOR DRIVE
IC754
IRIS DRIVE
L754
IC755
IRIS HALL AMP,BIAS
IC753
FOCUS MR SENS AMP
L753
IC756 IC757
FOCUS DRIVE
CN751
MR SENS Vcc
FOCUS MR SENSOR
(See Page 105)
LENS BLOCK
COLOR ELECTRIC VIEWFINDER
VF-60 BOARD
〈See Page 33〉
IC954
IC951
DC/AC INVERTER (BACK LIGHT DRIVE)
EVF UNREG
EVF 5V
15V
CN951
CN953
13.5V
12V
EVF 5V
CN801 FOR CHECK
VF-59 BOARD
〈See Page 35〉
CN803
CN802
V VDD
H VDD
IC801
RGB DECODER
IC802
LCD DRIVE
IC803
LCD PULSE DRIVE
IC804
LCD TIMING GENERATOR
〈See Page 36〉
LCD PANEL

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



BATTERY TERMINAL
PS081
PS082
PS083
FU-111 BOARD
W011 1.5 BOARD IN 6P
W012 BOARD IN 6P 1.5
DF-51
EF-53
DC/DC CON
SHIELD CASE
DD-54 BOARD
CN351 6P (L) 1.5
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1 (NC)
UNREG GND 2
UNREG GND 3
CN352 0.8 B-B (SOCKET) 30P
FP-537 (B TO B) WITH CONNECTOR
0.8 B-B (PLUG I) 30P
CN204 0.8 B-B (SOCKET) 30P
CN002 0.8 B-B (PLUG L) 14P CPC
LANC SIG
N.C.
GND
CAP FG
REC 1B
REC 2B
REC 1A
REC 2A
RF SWP
1/2 RF SWP
PB RF CH1
PB RF CH2
RF GND
PB RF
CN305 0.5 FPC 24P
FP-605
W114 24P 0.8
CN111 6P 1.5 (L)
BATT GND
ACV UNREG
ACV GND
EZ-3 BOARD
CN113 20P
EASY CNECTION
CN112 17P 0.5 FPC
FPC
JACK BOARD
S VIDEO
VIDEO
DC OUT
AUDIO L
AUDIO R
REMOTE
CHARGE LED
COLOR ELECTRIC VIEWFINDER
COLOR LCD
CN802 0.5 FPC 16P
CN803 0.5 FPC 10P
FP-581
CN801 0.8 B-B (SOCKET) 10P CPC
CHECK PIN
VF-59 BOARD
LCD (DISPLAY LCD)
CN912 24P 0.5 FPC
CN953 0.5 FPC 10P
CN955 1.25 B-B 8P
EVF POWER SUPPLY
VF-60 BOARD
CN951 0.5 FPC 7P
FP-541
CN303 7P 0.8 FPC (NON ZIF) 7P
R/P AMP
VC-129 B
CN001 15P 0.5 FPC
VIDEO HEAD
CN203 2P 1.5
LOAD
UNLOAD
M903 LOADING MOTOR
CN202 6P 0.5 FPC
DEW SENSOR MODE SW
CN206 12P 0.5 FPC
M901 DRUM MOTOR
CN207 18P 0.5 FPC
FP-550
CARD EDGE
M902 CAPSTAN MOTOR
CN201 15P 0.5 FPC
MD FL-


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
CN953 0.5 FPC 10P
CN955 1.25 B-B 8P
CN954 1.25 B-B 8P
FF-66 BOARD
BACK LIGHT
EVF POWER SUPPLY
SHIELD CASE
VF-60 BOARD
CN951 0.5 FPC 7P
FP-541
CN303 7P 0.8 FPC (NON ZIF)
CD-101 BOARD
W721 16P (0.8MM)
FP-580
0.8 B-B (PLUG I) 16P
CN601 16P 0.8 B-B (SOCKET)
LENS
ZOOM MOTOR
FOCUS MOTOR
IRIS METER
FPC
CN751 26P 0.5 FPC
LD-63 BOARD
CN752 30P B-B (PLUG L) 30P
CN652 30P B-B (SOCKET) 30P
VC-129 BOARD
FUNCTION KEYS
E, Australian, Tourist model
POWER, PB, REC
STOP, FF, REW,
PAUSE, MENU,
SELECT,
EDIT (+), EDIT (-)
EJECT, DATE, TIME,
COUNTER RESET, AE,
AUTO LOCK, BRT DIAL,
BRT ON/OFF,
FOCUS ON/OFF
MANU FOCUS
STAND-BY,
ZOOM,
START/STOP
CN911 24P 0.5 FPC
FPC
RE-22 BOARD
CN211 0.8 FPC (NON ZIF) 5P
FRONT TALLY
REMOTE CONTROL RECIEVER
RE-23 BOARD
CN212 0.8 FPC (NON ZIF) 4P
REMOTE CONTROL RECIEVER
FP-550
CN201 15P 0.5 FPC
FPC
FP-423
CARD EDGE
M902 CAPSTAN MOTOR
MD FL-MECHA
CN451 18P 0.8 B-B (PLUG L) CPC
CN304 28P 0.8 B-B (SOCKET)
CN801 28P 0.8 B-B (PLUG I)
AU-146 BOARD
CN802 8P 0.5 FPC
FP-540
CN021 8P 0.5 FPC
HEADPHONES
MIC DC OUT
MIC
CN022 2P 1.5 (L)
CN023 2P 1.5 (L)
MIC
MA-164 BOARD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.

(The other layers'patterns are not indicated.)

- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

Four types of printed wiring board diagrams have been provided for the above conductor and component sides in this service manual (those with patterns and those without).

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repeair.
- ━━ : B+ Line.
- ━ ━ ━ : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

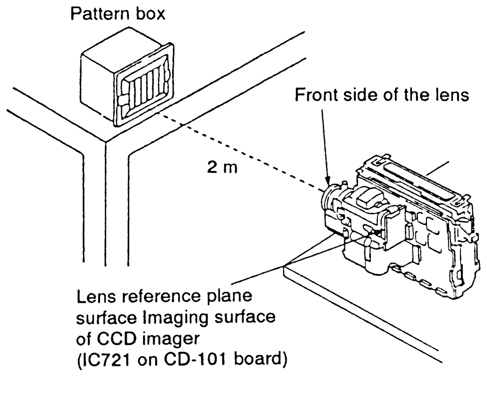
When indicating parts by reference number, please include the board name.

- **Measuring conditions voltage value and waveform.**

(CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
Front side of the lens
2 m
Lens reference plane surface Imaging surface of CCD imager (IC721 on CD-101 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

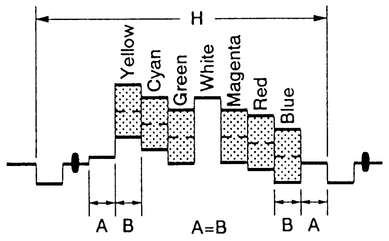


Fig. a (Video output terminal output waveform)

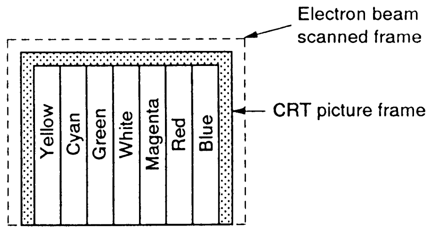


Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, VIEW FINDER block)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

There are not the external input terminal (VIDEO/AUDIO IN) and REC switch in AEP, UK model. Accordingly, perform as the followings for REC mode.

Signal input:	Refer to the video signal input method for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 266, Fig. 9-1).
REC mode:	Refer to the transition method to REC mode for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 265. 9-1-3).

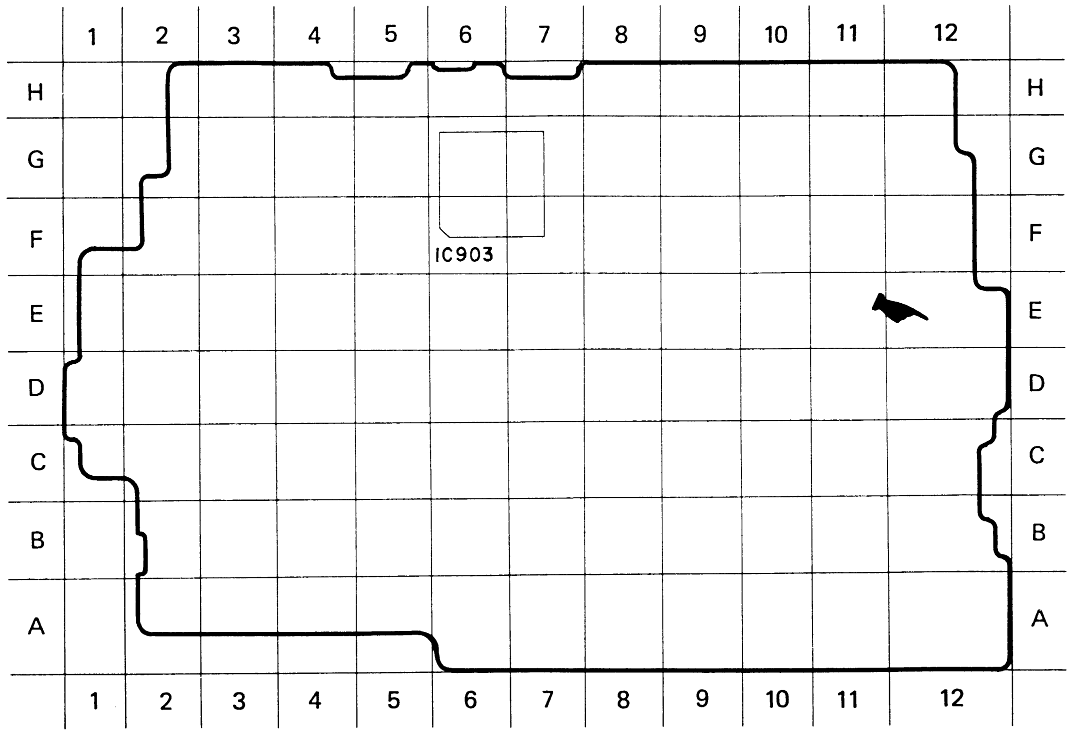
( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL.

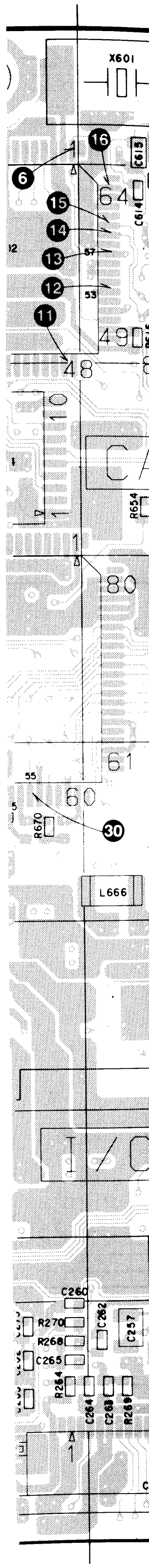
Differences table of VC-129 board.

CCD-TR8E				CCD-TR1E			
Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	A-7063-403-A	VC-129 BOARD, COMPLETE ******************** (Ref.No. 2,000 Series)			A-7092-057-A	VC-129 BOARD, COMPLETE ******************** (Ref.No. 2,000 Series)	
		< CAPACITOR >				< CAPACITOR >	
C327	————			C327	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
		< RESISTOR >				< RESISTOR >	
R301	————			R301	1-218-954-11	METAL GLAZE 1.2K 5% 1/16W	
R344	————			R344	1-216-864-11	METAL CHIP 0 5% 1/16W	

VC-129 BOARD (COMPONENT SIDE)

A SIDE





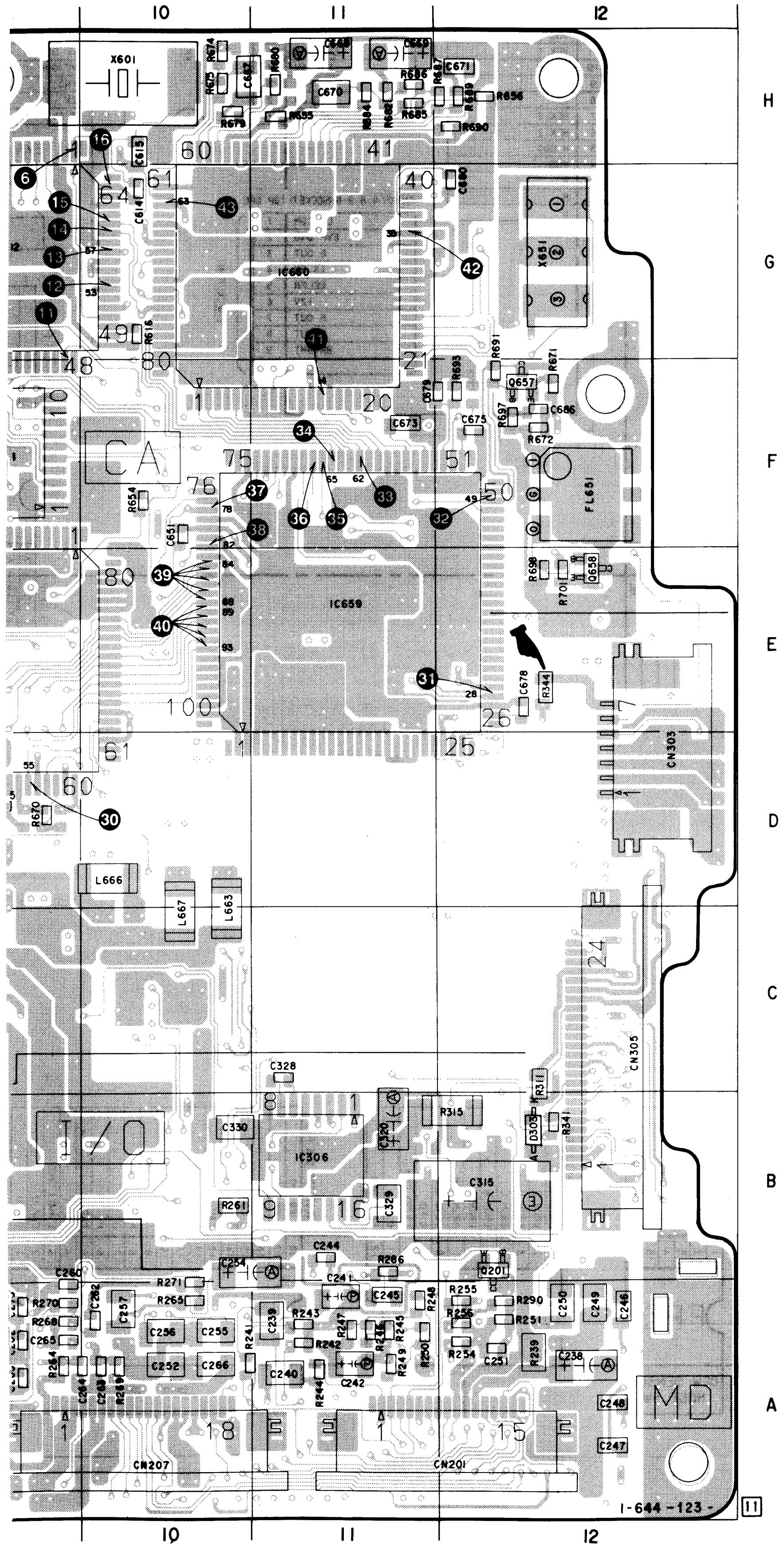
Remark
0 Series)
16V
1/16W
1/16W

VC-129 (CAMERA, VIDEO, SERVO/SYSTEM CONTROL), DB-10 (5.3V REG) PRINTED WIRING BOARDS (See Page 108–112)

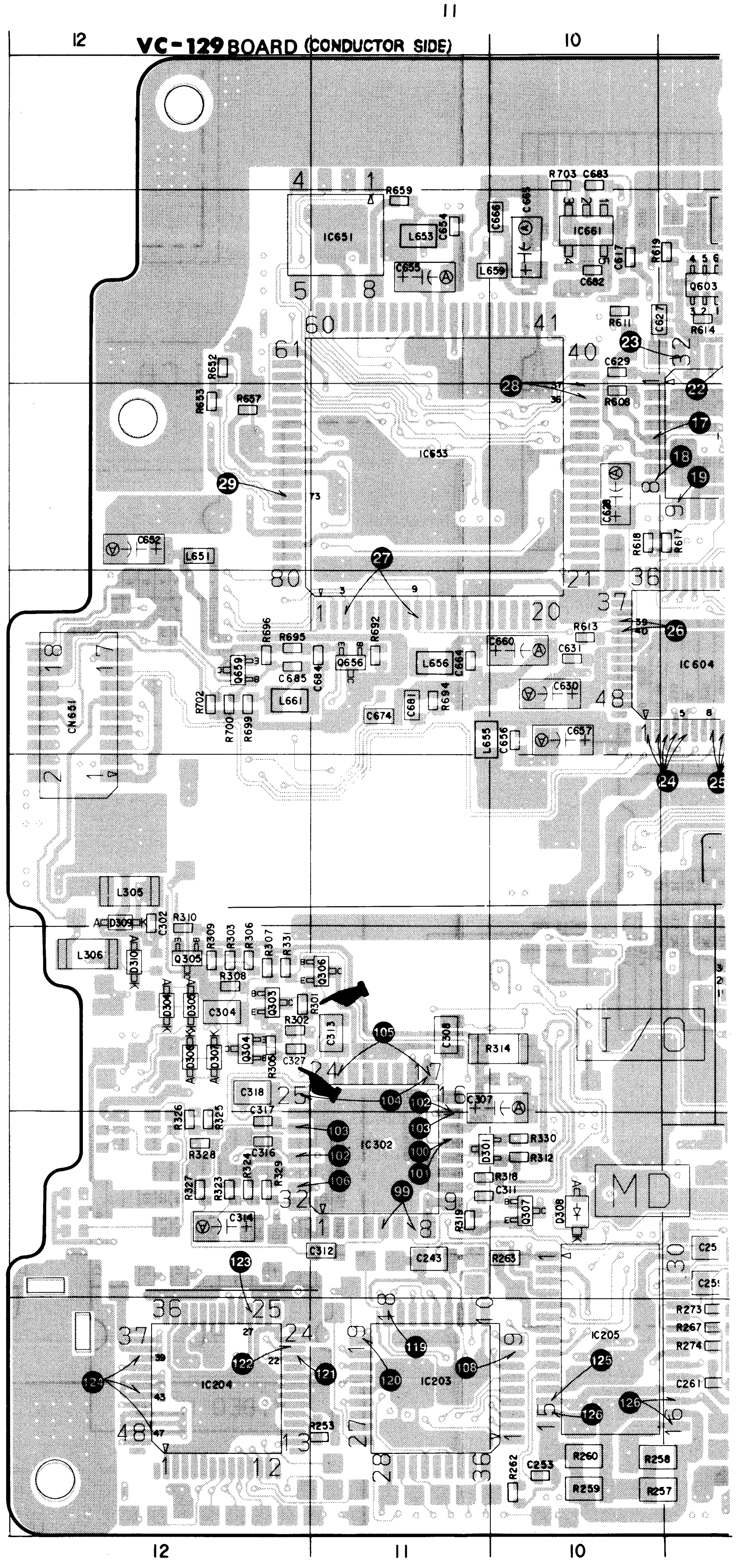
— Ref. No. VC-129 BOARD: 2000 series, DB-10 BOARD: 4000 series —

( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL.

A SIDE


10
11
12
H
G
F
E
D
C
B
A
X601
IC660
IC659
IC306
FL651
CN303
CN305
CN207
CN201
I/O
CA
MD
1-644-123-11

B SIDE

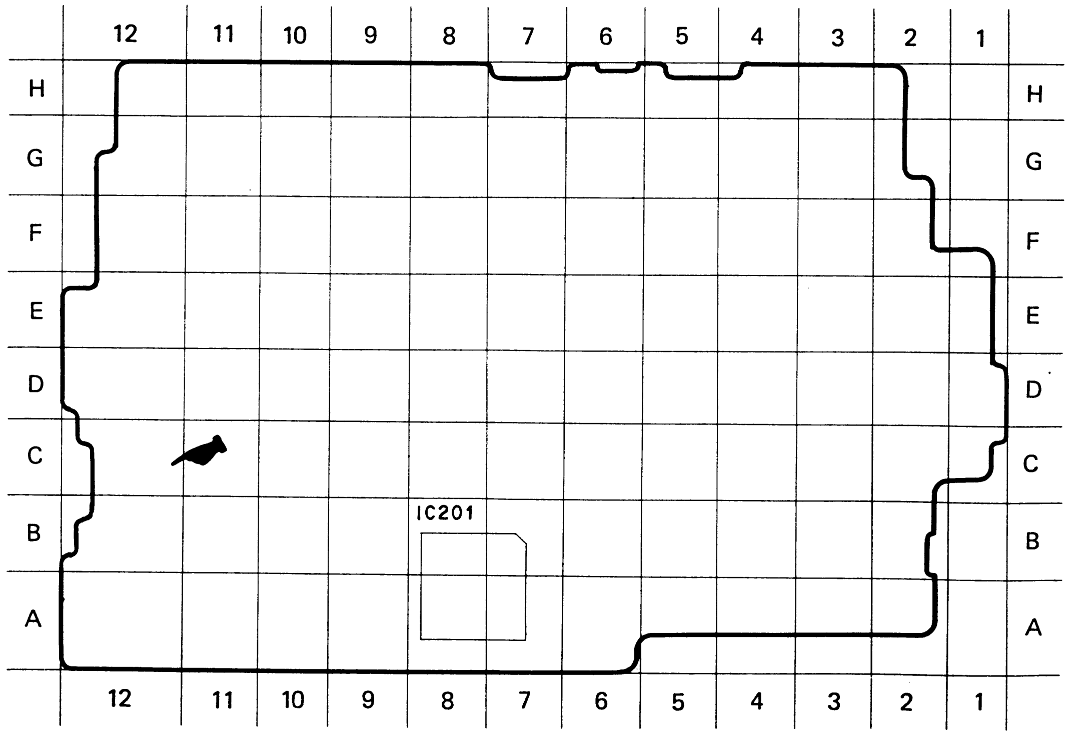

VC-129 BOARD (CONDUCTOR SIDE)
12
11
10
IC651
IC653
IC661
IC604
IC302
IC204
IC203
IC205
CN651
I/O
MD

☛ : Changed Portion

- **For printed wiring boards**
- VC-129 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

VC-129 BOARD (CONDUCTOR SIDE) **B SIDE**

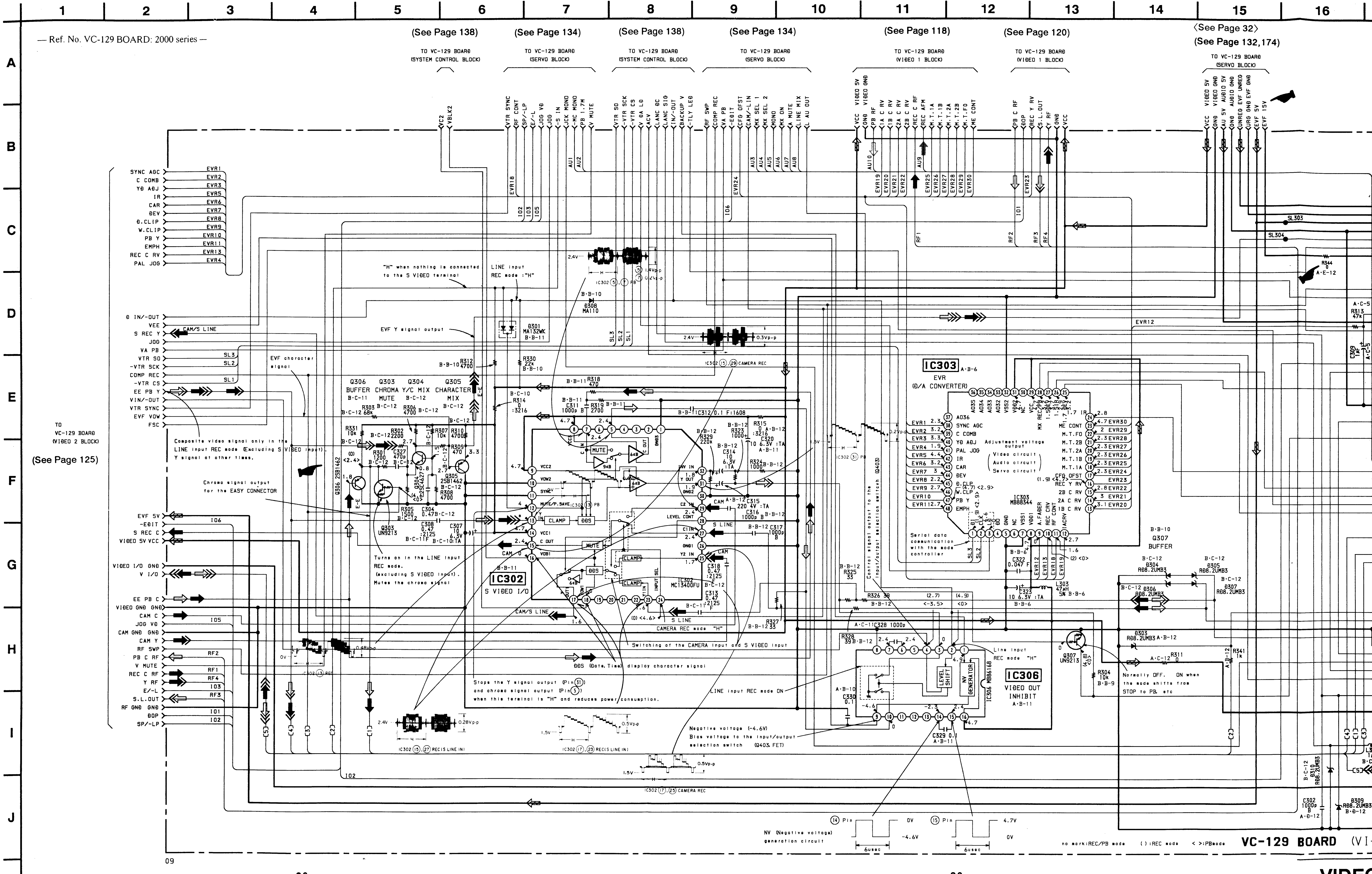

12
11
10
9
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
IC201

VC-129 (VIDEO 3 (I/O)) SCHEMATIC DIAGRAM

( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL, 〈 〉 : Pages of CCD-TR1E.

: Changed Portion

— Ref. No. VC-129 BOARD: 2000 series —



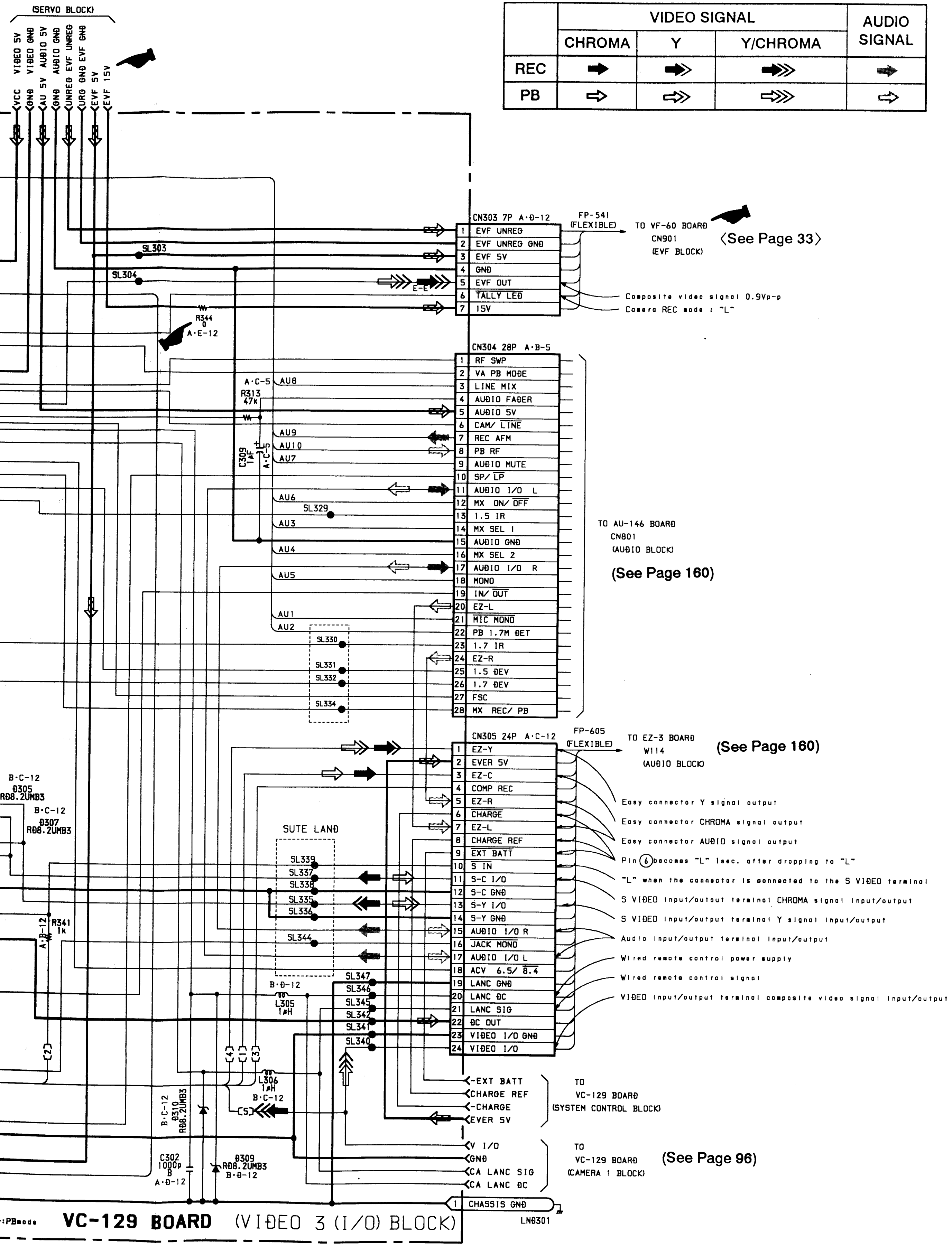
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 118)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 120)
TO VC-129 BOARD (VIDEO 1 BLOCK)
〈See Page 32〉
(See Page 132,174)
TO VC-129 BOARD (SERVO BLOCK)
TO VC-129 BOARD (VIDEO 2 BLOCK)
(See Page 125)
SYNC AGC
C COMB
YD ADJ
IR
CAR
DEV
D.CLIP
W.CLIP
PB Y
EMPH
REC C RV
PAL JOG
D IN/-OUT
VEE
S REC Y
JOG
VA PB
VTR SO
-VTR SCK
COMP REC
-VTR CS
EE PB Y
VIN/-OUT
VTR SYNC
EVF VDW
FSC
EVF 5V
-EDIT
S REC C
VIDEO 5V VCC
VIDEO I/O GND
V I/O
EE PB C
VIDEO GND GND
CAM C
JOG VD
CAM GND GND
CAM Y
RF SWP
PB C RF
V MUTE
REC C RF
Y RF
E/-L
S.L.OUT
RF GND GND
DOP
SP/-LP
CAM/S LINE
"H" when nothing is connected to the S VIDEO terminal
LINE input REC mode :"H"
EVF Y signal output
EVF character signal
Composite video signal only in the LINE input REC mode (Excluding S VIDEO input). Y signal at other times.
Chroma signal output for the EASY CONNECTOR
Q306 BUFFER B-C-11
Q303 CHROMA MUTE B-C-12
Q304 Y/C MIX B-C-12
Q305 CHARACTER MIX B-C-12
D301 MA132WK B-B-11
D308 MA110
IC302 S VIDEO I/O
IC302 MC13400FU
MUTE
CLAMP
DDS
Turns on in the LINE input REC mode. (excluding S VIDEO input). Mutes the chroma signal
Stops the Y signal output (Pin㉛) and chroma signal output (Pin⑤) when this terminal is "H" and reduces power consumption.
DDS (Date, Time) display character signal
Switching of the CAMERA input and S VIDEO input
CAMERA REC mode "H"
S LINE
IC303 A-B-6
EVR (D/A CONVERTER)
IC303 MB88344
Adjustment voltage output
Video circuit
Audio circuit
Servo circuit
Serial data communication with the mode controller
Control signal output to the input/output selection switch (Q403)
IC306 VIDEO OUT INHIBIT A-B-11
IC306 MB86168
LEVEL SHIFT
NV GENERATOR
Line input REC mode "H"
LINE input REC mode ON
Negative voltage (-4.6V)
Bias voltage to the input/output selection switch (Q403 FET)
NV (Negative voltage) generation circuit
Q307 BUFFER
Q307 UN9213
Normally OFF. ON when the mode shifts from STOP to PB, etc
SL303
SL304
EVR12
IC302 ⑮,㉙ CAMERA REC
IC302 ⑮,㉗ REC(S LINE IN)
IC302 ⑰,㉓ REC(S LINE IN)
IC302 ⑰,㉕ CAMERA REC
⑭ Pin
⑮ Pin
0V
-4.6V
4.7V
6usec
no mark:REC/PB mode
( ):REC mode
< >:PBmode
VC-129 BOARD (VI
09

VIDE

〈See Page 32〉
(See Page 132,174)

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨


TO VC-129 BOARD (SERVO BLOCK)
VIDEO 5V
VIDEO GND
AUDIO 5V
AUDIO GND
UNREG EVF UNREG
URG GND EVF GND
EVF 5V
EVF 15V
VCC
GND
AU 5V
GND
UNREG
URG GND
EVF 5V
EVF 15V
SL303
SL304
R344 0
A·E-12
E-E
CN303 7P A·B-12
FP-541 (FLEXIBLE)
TO VF-60 BOARD CN901 (EVF BLOCK)
〈See Page 33〉
1 EVF UNREG
2 EVF UNREG GND
3 EVF 5V
4 GND
5 EVF OUT
6 TALLY LED
7 15V
Composite video signal 0.9Vp-p
Camera REC mode : "L"
CN304 28P A·B-5
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/ LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/ LP
11 AUDIO I/O L
12 MX ON/ OFF
13 1.5 IR
14 MX SEL 1
15 AUDIO GND
16 MX SEL 2
17 AUDIO I/O R
18 MONO
19 IN/ OUT
20 EZ-L
21 MIC MONO
22 PB 1.7M DET
23 1.7 IR
24 EZ-R
25 1.5 DEV
26 1.7 DEV
27 FSC
28 MX REC/ PB
TO AU-146 BOARD CN801 (AUDIO BLOCK)
(See Page 160)
A·C-5
AU8
R313 47k
AU9
AU10
AU7
C309 1μ
AU6
SL329
AU3
AU4
AU5
AU1
AU2
SL330
SL331
SL332
SL334
CN305 24P A·C-12
FP-605 (FLEXIBLE)
TO EZ-3 BOARD W114 (AUDIO BLOCK)
(See Page 160)
1 EZ-Y
2 EVER 5V
3 EZ-C
4 COMP REC
5 EZ-R
6 CHARGE
7 EZ-L
8 CHARGE REF
9 EXT BATT
10 S IN
11 S-C I/O
12 S-C GND
13 S-Y I/O
14 S-Y GND
15 AUDIO I/O R
16 JACK MONO
17 AUDIO I/O L
18 ACV 6.5/ 8.4
19 LANC GND
20 LANC DC
21 LANC SIG
22 DC OUT
23 VIDEO I/O GND
24 VIDEO I/O
Easy connector Y signal output
Easy connector CHROMA signal output
Easy connector AUDIO signal output
Pin ⑥ becomes "L" 1sec. after dropping to "L"
"L" when the connector is connected to the S VIDEO terminal
S VIDEO input/output terminal CHROMA signal input/output
S VIDEO input/output terminal Y signal input/output
Audio input/output terminal input/output
Wired remote control power supply
Wired remote control signal
VIDEO input/output terminal composite video signal input/output
SUTE LAND
SL339
SL337
SL338
SL335
SL336
SL344
SL347
SL346
SL345
SL342
SL341
SL340
B·C-12
D305 RB8.2UMB3
B·C-12
D307 RB8.2UMB3
A·B-12
R341 1k
B·D-12
L305 1μH
L306 1μH
B·C-12
B·C-12 D310 RB8.2UMB3
C302 1000p B A·D-12
D309 RB8.2UMB3 B·D-12
EXT BATT
CHARGE REF
CHARGE
EVER 5V
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
V I/O
GND
CA LANC SIG
CA LANC DC
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96)
1 CHASSIS GND
LND301
:PBmode
VC-129 BOARD (VIDEO 3 (I/O) BLOCK)

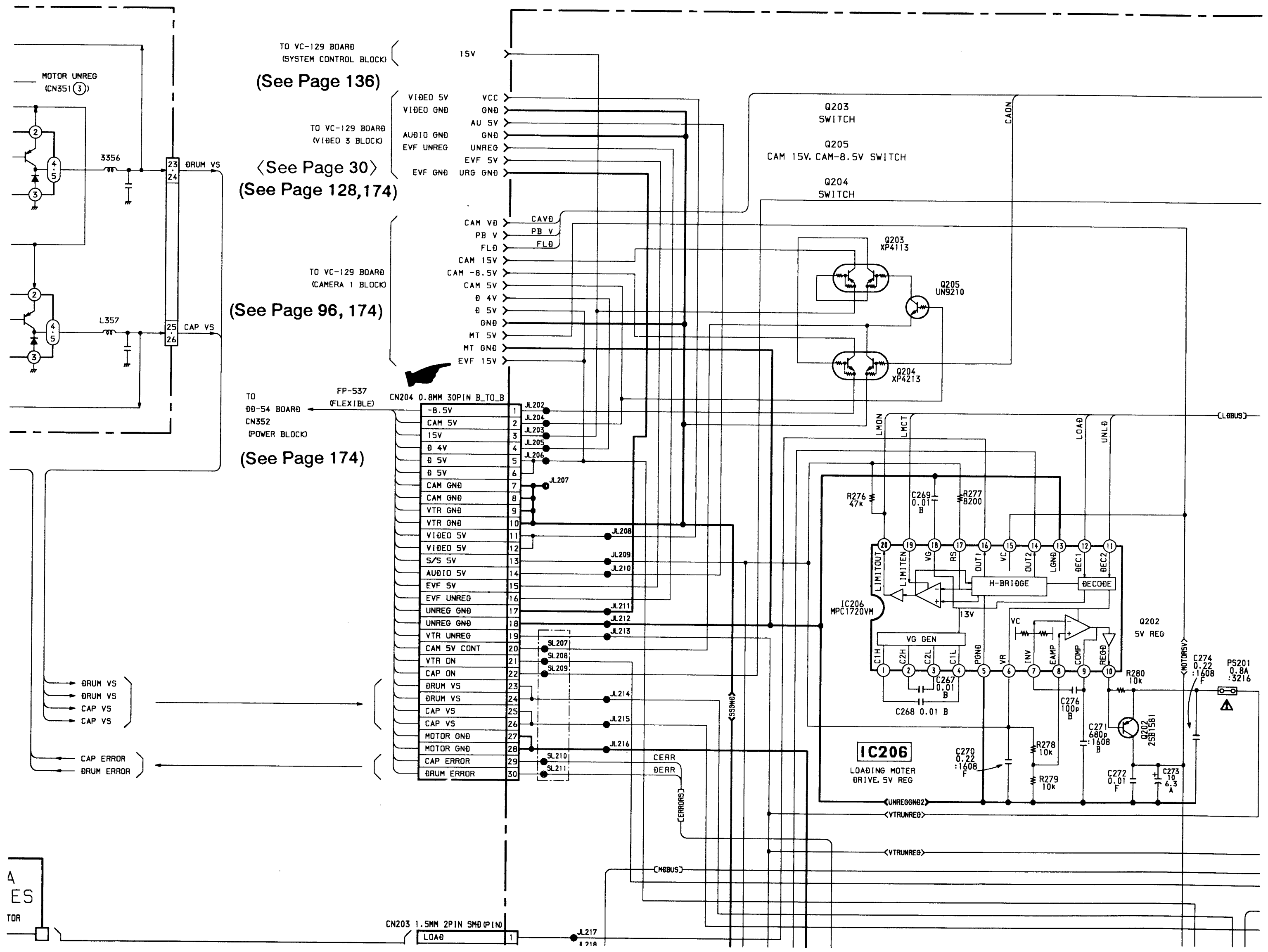
VC-129 (SERVO CONTROL (SS)), FP-423 (TAPE TOP/END SENSOR, TAPE SELECT) SCHEMATIC DIAGRAMS

— Ref. No. VC-129 BOARD: 2000 series, FP-423 BOARD: 4000 series —

(See Page 131–135)

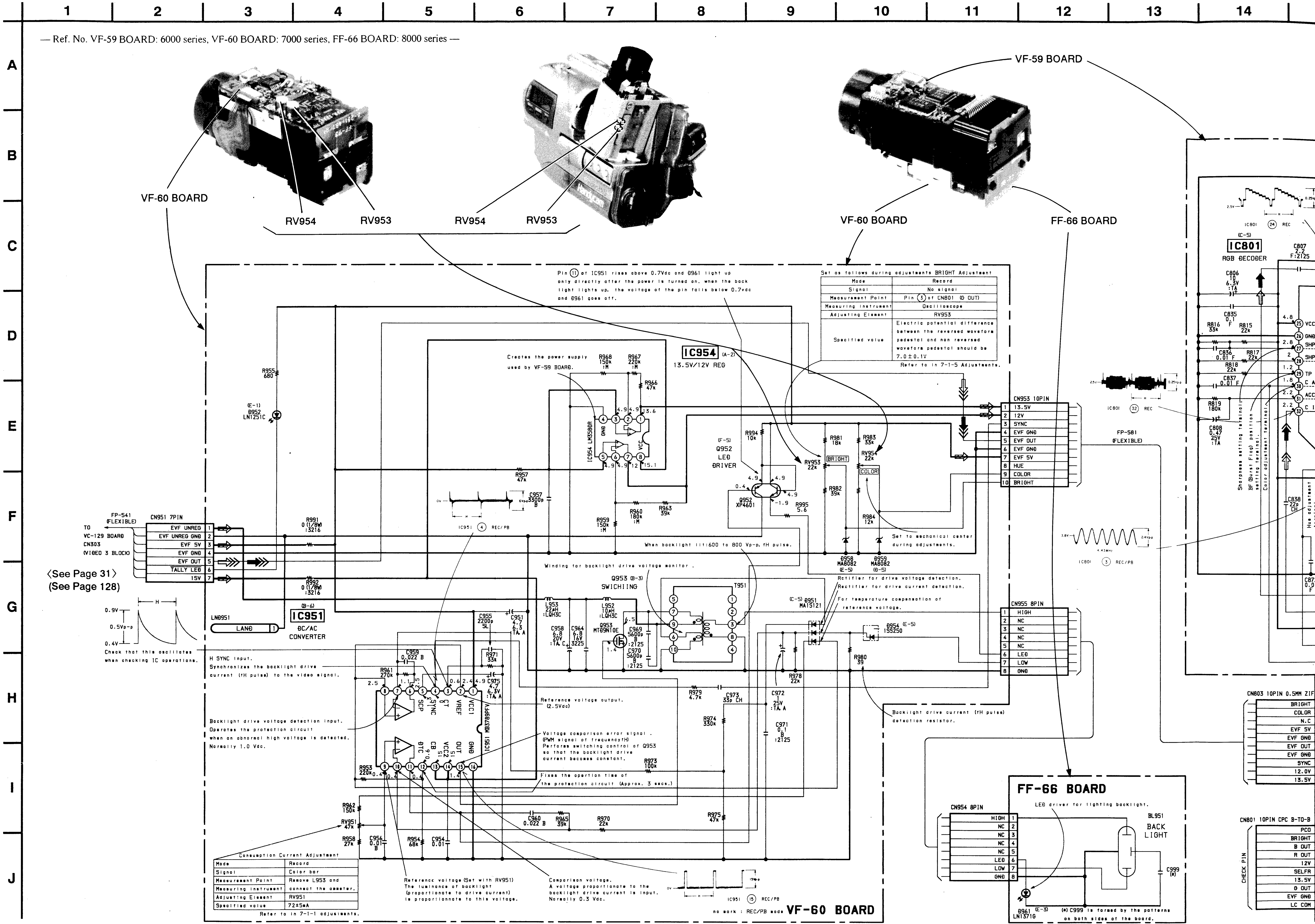
( ) : The pages above correspond to CCD-TR8E SERVICE MANUAL, 〈 〉 : Pages of CCD-TR1E.

☛ : Changed Portion


MOTOR UNREG (CN351 ③)
3356
L357
23 DRUM VS
24
25 CAP VS
26
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 136)
15V
TO VC-129 BOARD (VIDEO 3 BLOCK)
〈See Page 30〉
(See Page 128,174)
VIDEO 5V
VIDEO GND
AUDIO GND
EVF UNREG
EVF GND
VCC
GND
AU 5V
GND
UNREG
EVF 5V
URG GND
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96, 174)
CAM VD
PB V
FLD
CAM 15V
CAM -8.5V
CAM 5V
D 4V
D 5V
GND
MT 5V
MT GND
EVF 15V
CAVD
TO DD-54 BOARD CN352 (POWER BLOCK)
(See Page 174)
FP-537 (FLEXIBLE)
CN204 0.8MM 30PIN B_TO_B
1 -8.5V
2 CAM 5V
3 15V
4 D 4V
5 D 5V
6 D 5V
7 CAM GND
8 CAM GND
9 VTR GND
10 VTR GND
11 VIDEO 5V
12 VIDEO 5V
13 S/S 5V
14 AUDIO 5V
15 EVF 5V
16 EVF UNREG
17 UNREG GND
18 UNREG GND
19 VTR UNREG
20 CAM 5V CONT
21 VTR ON
22 CAP ON
23 DRUM VS
24 DRUM VS
25 CAP VS
26 CAP VS
27 MOTOR GND
28 MOTOR GND
29 CAP ERROR
30 DRUM ERROR
JL202
JL204
JL203
JL205
JL206
JL207
JL208
JL209
JL210
JL211
JL212
JL213
JL214
JL215
JL216
JL217
SL207
SL208
SL209
SL210
SL211
DRUM VS
DRUM VS
CAP VS
CAP VS
CAP ERROR
DRUM ERROR
CN203 1.5MM 2PIN SMD(PIN)
1 LOAD
Q203 SWITCH
Q205 CAM 15V, CAM-8.5V SWITCH
Q204 SWITCH
Q203 XP4113
Q205 UN9210
Q204 XP4213
CADN
LMON
LMCT
LOAD
UNLD
LBUS
R276 47k
C269 0.01 B
R277 8200
IC206 MPC1720VH
LIMITOUT
LIMITEN
VG
RS
VC
OUT1
OUT2
LGND
DEC1
DEC2
H-BRIDGE
DECODE
VG GEN
13V
CTH
2H
CTL
INV
EAMP
COMP
REGO
C267 0.01 B
C268 0.01 B
IC206
LOADING MOTER DRIVE, 5V REG
C270 0.22 :1608 F
R278 10k
R279 10k
C276 100p B
C271 680p :1608 B
Q202 2SD1581
C272 0.01 F
C273 4.3 A
R280 10k
Q202 5V REG
C274 0.22 :1608 F
PS201 0.8A :3216
CERR
DERR
ERRORS
UNREGON02
VTRUNREG
MSBUS
ES
TOR

VF-59 (RGB DECORDER, LCD DRIVE), VF-60 (DC/AC CONVERTER), FF-66 (BACK LIGHT) SCHEMATIC DIAGRAMS

— Ref. No. VF-59 BOARD: 6000 series, VF-60 BOARD: 7000 series, FF-66 BOARD: 8000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
VF-60 BOARD
RV954
RV953
VF-59 BOARD
FF-66 BOARD
FP-541 (FLEXIBLE)
TO VC-129 BOARD CN303 (VIDEO 3 BLOCK)
CN951 7PIN
EVF UNREG 1
EVF UNREG GND 2
EVF 5V 3
EVF GND 4
EVF OUT 5
TALLY LED 6
15V 7
〈See Page 31〉
(See Page 128)
0.9V
0.5Vp-p
0.4V
H
LND951
LAND
IC951
(B-6)
DC/AC CONVERTER
IC954 (A-2)
13.5V/12V REG
Q952 LED DRIVER
Q952 XP4601
Q953 (B-3) SWICHIING
Q953 MTD9N10E
T951
D951 MA1S121 (C-5)
D954 1SS250 (E-5)
D958 MA8082 (E-5)
D959 MA8082 (D-5)
D952 LN1251C (E-1)
RV953 22k
RV954 22k
RV951 47k
BRIGHT
COLOR
CN953 10PIN
1 13.5V
2 12V
3 SYNC
4 EVF GND
5 EVF OUT
6 EVF GND
7 EVF 5V
8 HUE
9 COLOR
10 BRIGHT
CN955 8PIN
1 HIGH
2 NC
3 NC
4 NC
5 NC
6 LED
7 LOW
8 GND
FP-581 (FLEXIBLE)
IC951 ④ REC/PB
IC951 ⑮ REC/PB
IC801 ㉔ REC
IC801 ㉜ REC
IC801 ③ REC/PB
VF-60 BOARD
no mark : REC/PB mode
FF-66 BOARD
CN954 8PIN
HIGH 1
NC 2
NC 3
NC 4
NC 5
LED 6
LOW 7
GND 8
BL951
BACK LIGHT
C999 (*)
D961 (E-3) LN1371G
IC801 (C-5)
RGB DECODER
CN803 10PIN 0.5MM ZIF
BRIGHT
COLOR
N.C
EVF 5V
EVF GND
EVF OUT
EVF GND
SYNC
12.0V
13.5V
CN801 10PIN CPC B-TO-B
PCO
BRIGHT
B OUT
R OUT
12V
SELFR
13.5V
G OUT
EVF GND
LC COM
CHECK PIN
09

Pin ⑪ of IC951 rises above 0.7Vdc and D961 light up only directly after the power is turned on, when the back light lights up, the voltage of the pin falls below 0.7vdc and D961 goes off.

Creates the power supply used by VF-59 BOARD.

Set as follows during adjustments BRIGHT Adjustment

Mode	Record
Signal	No signal
Measurement Point	Pin ③ of CN801 (G OUT)
Measuring instrument	Oscilloscope
Adjusting Element	RV953
Specified value	Electric potential difference between the reversed waveform pedestal and non reversed waveform pedestal should be 7.0±0.1V

Refer to in 7-1-5 Adjustments.

Set to mechanical center during adjustments.

When backlight lit:600 to 800 Vp-p, fH pulse.

Winding for backlight drive voltage monitor .

Rctifier for drive voltage detection.

Rectifier for drive current detection.

For temperature compensation of reference voltage.

Check that this oscillates when checking IC operations.

H SYNC input.
Synchronizes the backlight drive current (fH pulse) to the video signal.

Backlight drive voltage detection input.
Operates the protection circuit when an abnormal high voltage is detected.
Normally 1.0 Vdc.

Reference voltage output.
(2.5Vdc)

Voltage comparison error signal .
(PWM signal of frequencyfH)
Performs switching control of Q953 so that the backlight drive current becomes constant.

Fixes the opertion time of the protection circuit (Approx. 3 secs.)

Backilght drive current (fH pulse) detection resistor.

Consumption Current Adjustment

Mode	Record
Signal	Color bar
Measurement Point	Remove L953 and connect the ammeter.
Measuring instrument	
Adjusting Element	RV951
Specified value	72±5mA

Refer to in 7-1-1 adjustments.

Referencc voltage (Set with RV951)
The luminance of backlight (proportionate to drive current) is proportionnate to this voltage.

Comparison voltage.
A voltage proportionate to the backlight drive current is input.
Normally 0.3 Vdc.

LED driver for lighting backlight.

(*) C999 is formed by the patterns on both sides of the board.

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡		➡⋙	
PB	⇨		⇨⋙	

SUB BRIGHT B Preset Adjustment

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of CN801 (B OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV803
Specified value	Electric potential difference between reversed waveform pedestal and non reversed waveform pedestal should be 7.1±0.1V.
Remarks	Perform "White Balance Adjustment".

Refer to 7-1-8 in Adjustments.

SUB BRIGHT R Preset Adjustment

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN801 (R OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV802
Specified value	Electric potential difference between reversed waveform pedestal and non reversed waveform pedestal should be 7.1±0.1V.
Remarks	Perform "White Balance Adjustment".

Refer to 7-1-7 in Adjustments.

White Balance Adjustment

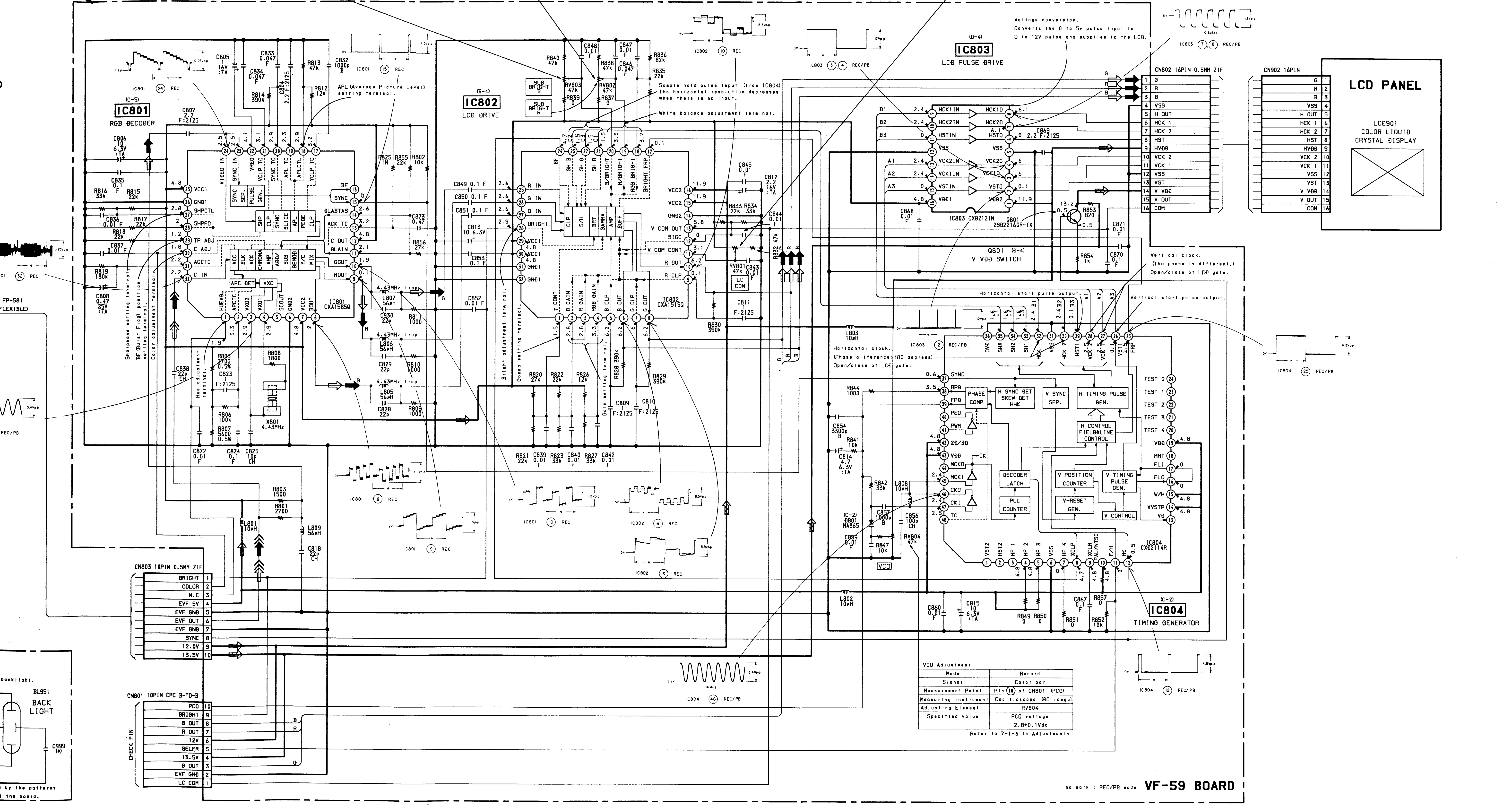
Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Check on LCD display
Measuring Instrument	
Adjusting Element	RV802, RV803
Specified value	Image should not be colored

Refer to 7-1-9 in Adjustments.

LC COM Voltage Adjustment

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	+:Pin ③ of CN801 (G OUT) +:Pin ① of CN801 (LC COM)
Measuring Instrument	Digital volt meter
Adjusting Element	RV801
Specified value	The voltage difference is +0.3±0.1 Vdc

Refer to 7-1-4 in Adjustments.


IC801 RGB DECODER
IC801 CXA1585Q
IC802 LCD DRIVE
IC802 CXA1515Q
IC803 LCD PULSE DRIVE
IC803 CX21212N
IC804 TIMING GENERATOR
IC804 CX22114R
Q801 V VDD SWITCH
Q801 2SB2216QR-TX
LCD PANEL
LCD901 COLOR LIQUID CRYSTAL DISPLAY
CN802 16PIN 0.5MM ZIF
CN902 16PIN
CN803 10PIN 0.5MM ZIF
CN801 10PIN CPC B-TO-B
CHECK PIN
BL951 BACK LIGHT
FP-581 FLEXIBLE
Voltage conversion. Converts the 0 to 5v pulse input to 0 to 12V pulse and supplies to the LCD.
Sample hold pulse input (from IC804) The horizontal resolution decreases when there is no input.
White balance adjustment terminal.
APL (Average Picture Level) setting terminal.
Horizontal clock. (Phase difference 180 degrees) Open/close of LCD gate.
Vertical clock. (The phase is different.) Open/close of LCD gate.
Horizontal start pulse output.
Vertical start pulse output.
Sharpness setting terminal.
BF (Burst Flag) position setting terminal.
Color adjustment terminal.
Hue adjustment terminal.
Bright adjustment terminal.
Gamma setting terminal.
Gain setting terminal.

VCO Adjustment

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑩ of CN801 (PCO)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV804
Specified value	PCO voltage 2.8±0.1Vdc

Refer to 7-1-3 in Adjustments.

no mark : REC/PB mode **VF-59 BOARD**

VF-59 (RGB DECORDER, LCD DRIVE) PRINTED WIRING BOARD

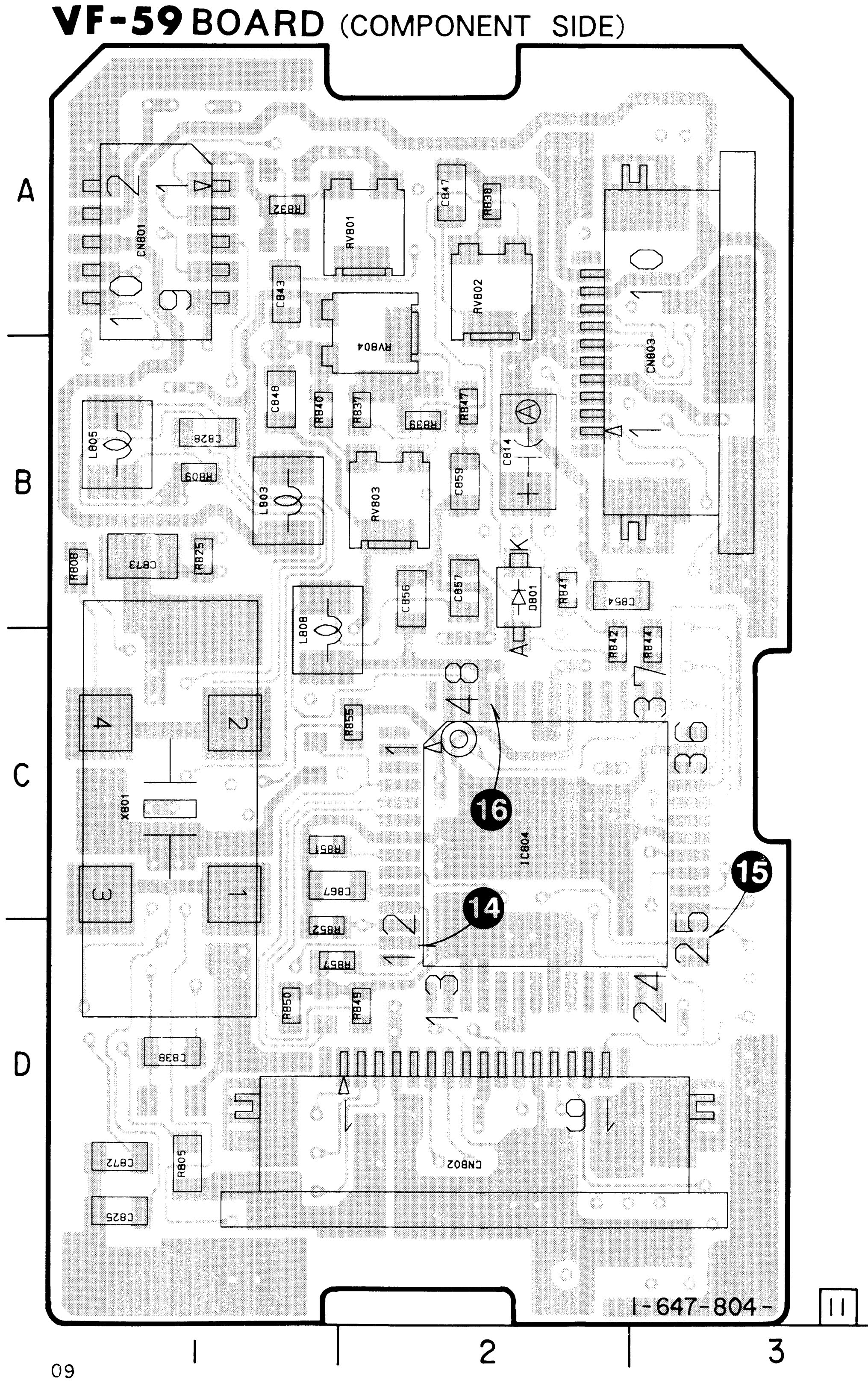
— Ref. No. VF-59 BOARD: 6000 series —

- **For printed wiring boards**
- VF-59 board is a four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

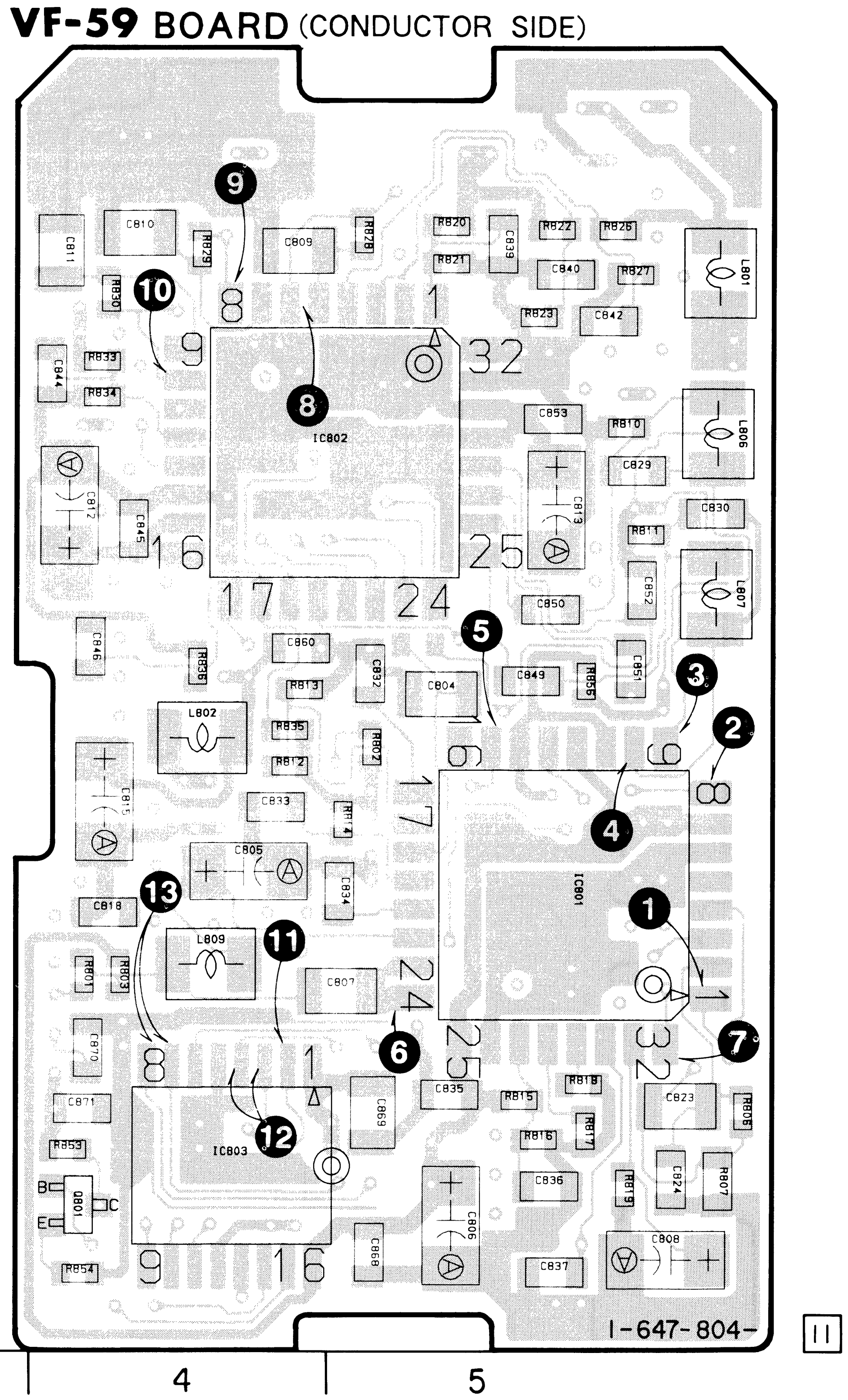
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

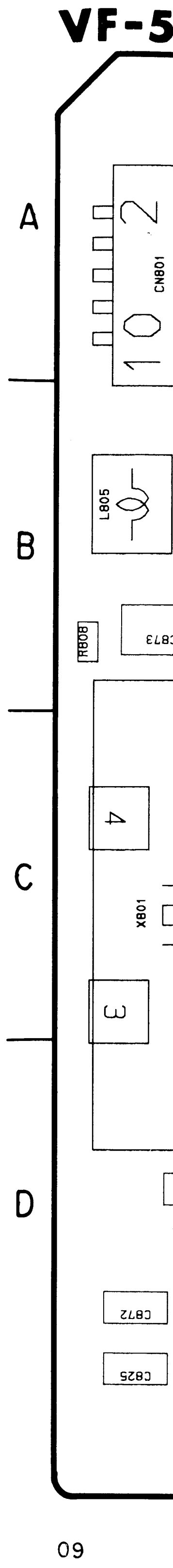
		< DIODE >	
D801	8-719-025-91	DIODE	MA365
		< IC >	
IC801	8-752-058-96	IC	CXA1585Q
IC802	8-752-058-95	IC	CXA1515Q
IC803	8-752-352-10	IC	CXD2121N
IC804	8-752-349-21	IC	CXD2114R
		< TRANSISTOR >	
Q801	8-729-425-64	TRANSISTOR	2SD2216Q

VF-59 BOARD (COMPONENT SIDE)

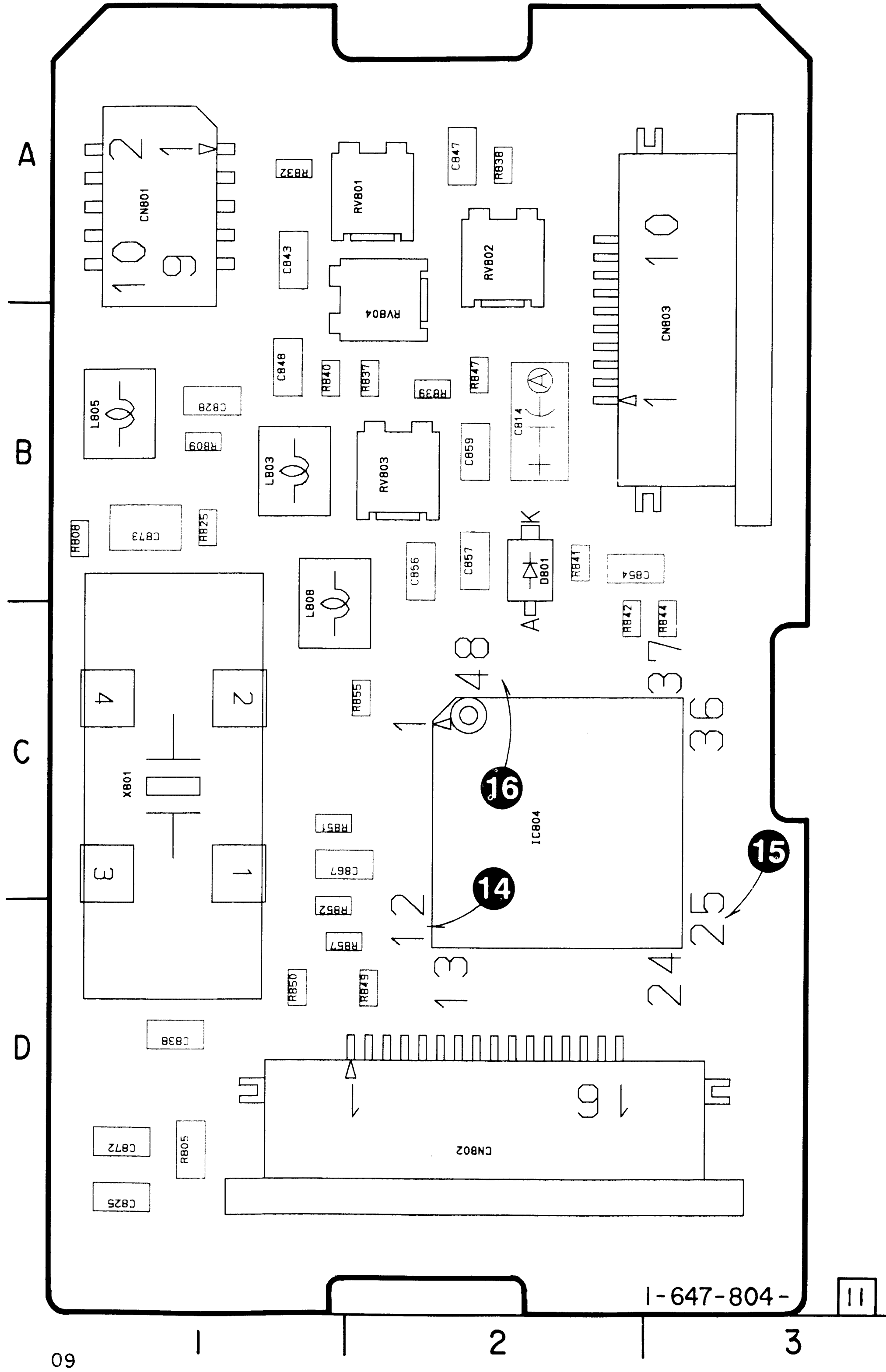

A
B
C
D
1
2
3
09
CN801
CN802
CN803
RV801
RV802
RV803
RV804
L803
L805
L808
X801
D801
IC804
C814
C843
C847
C848
C828
C857
C856
C859
C867
C872
C873
C825
C838
C854
R832
R838
R837
R840
R839
R847
R809
R808
R825
R841
R842
R844
R855
R851
R852
R857
R850
R849
R805
1-647-804-
11
⑭
⑮
⑯

VF-59 BOARD (CONDUCTOR SIDE)

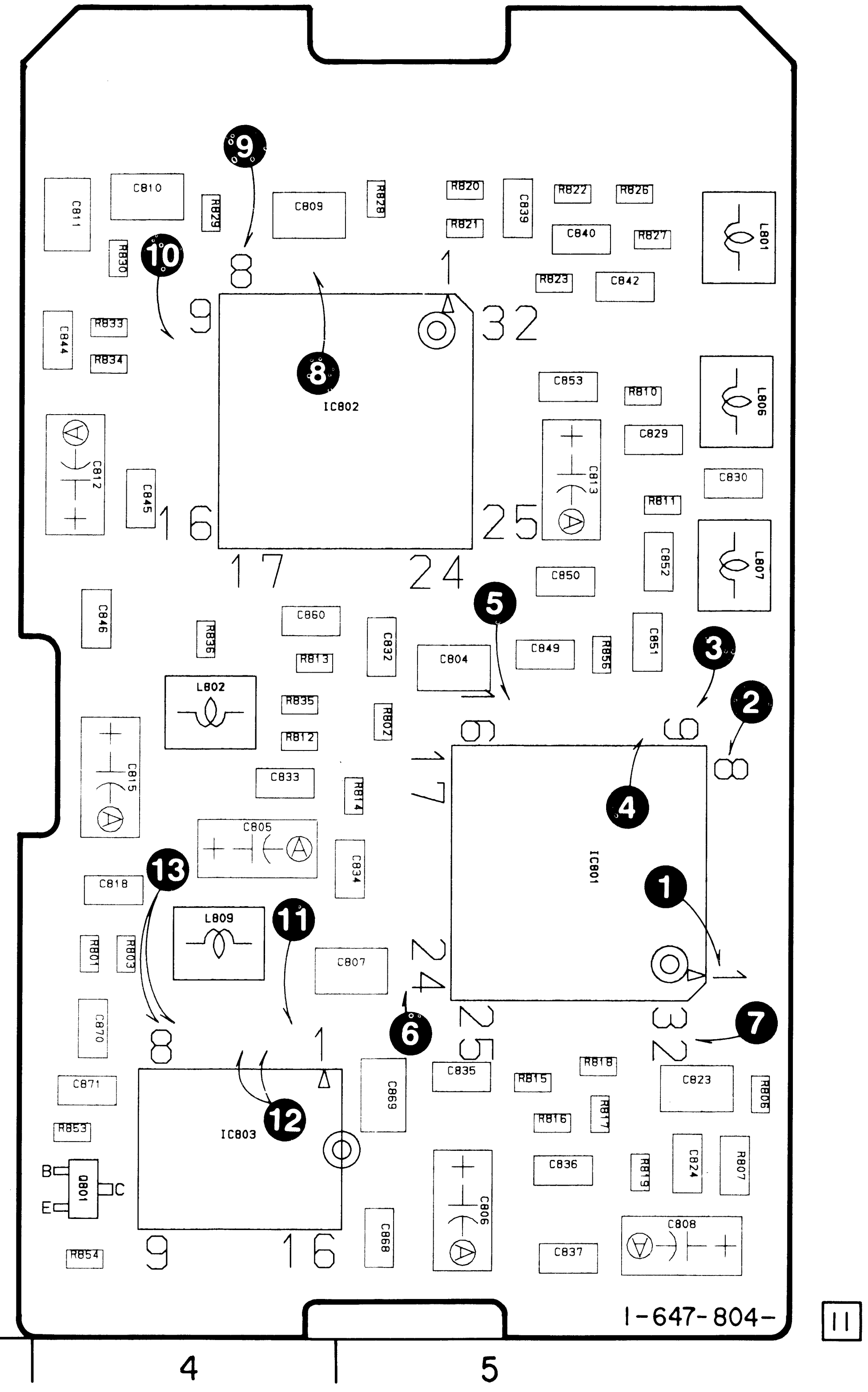

4
5
IC801
IC802
IC803
Q801
L801
L802
L806
L807
L809
C810
C811
C809
C839
C840
C842
C844
C853
C829
C830
C812
C813
C845
C850
C852
C846
C860
C832
C804
C849
C851
C815
C833
C805
C834
C818
C807
C870
C871
C869
C835
C823
C836
C824
C806
C868
C837
C808
R829
R828
R820
R821
R822
R826
R827
R823
R830
R833
R834
R810
R811
R836
R813
R835
R812
R802
R814
R855
R801
R803
R853
R854
R815
R816
R817
R818
R819
R806
R807
1-647-804-
11
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬

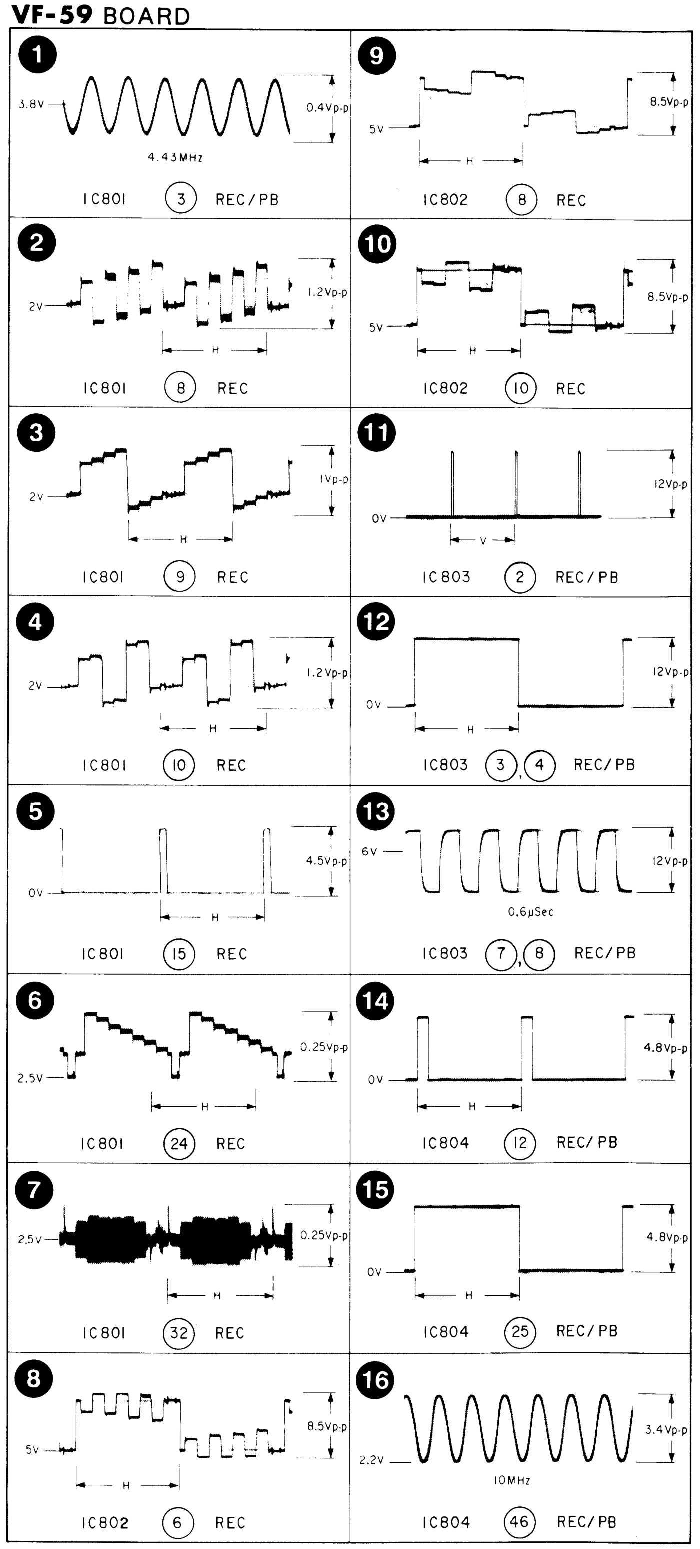

VF-5
A
B
C
D
CN801
L805
R808
C873
X801
C872
C825
09

VF-59 BOARD (COMPONENT SIDE)


A
B
C
D
1
2
3
09
CN801
RV801
RV802
RV803
RV804
CN803
L805
L803
L808
X801
IC804
D801
CN802
1-647-804-
⑭
⑮
⑯

VF-59 BOARD (CONDUCTOR SIDE)


4
5
IC802
IC801
IC803
L801
L802
L806
L807
L809
Q801
1-647-804-
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬



VF-60 (DC/AC CONVERTER), FF-66 (BACK LIGHT) PRINTED WIRING BOARDS

— Ref. No. VF-60 BOARD: 7000 series, FF-66 BOARD: 8000 series —

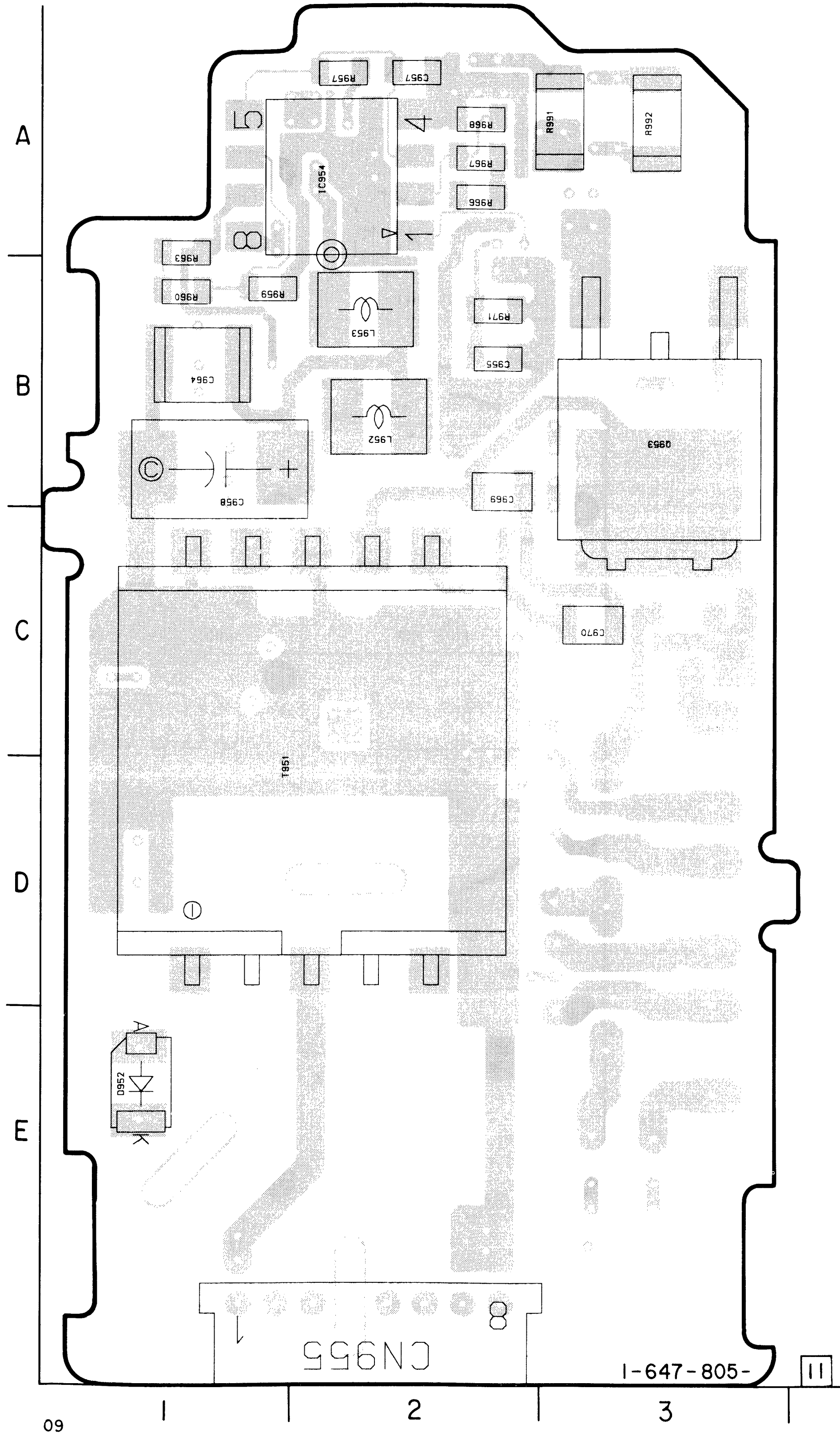
- Refer to page 33 for schematic diagram.

- **For printed wiring boards**
- VF-60 board is a four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

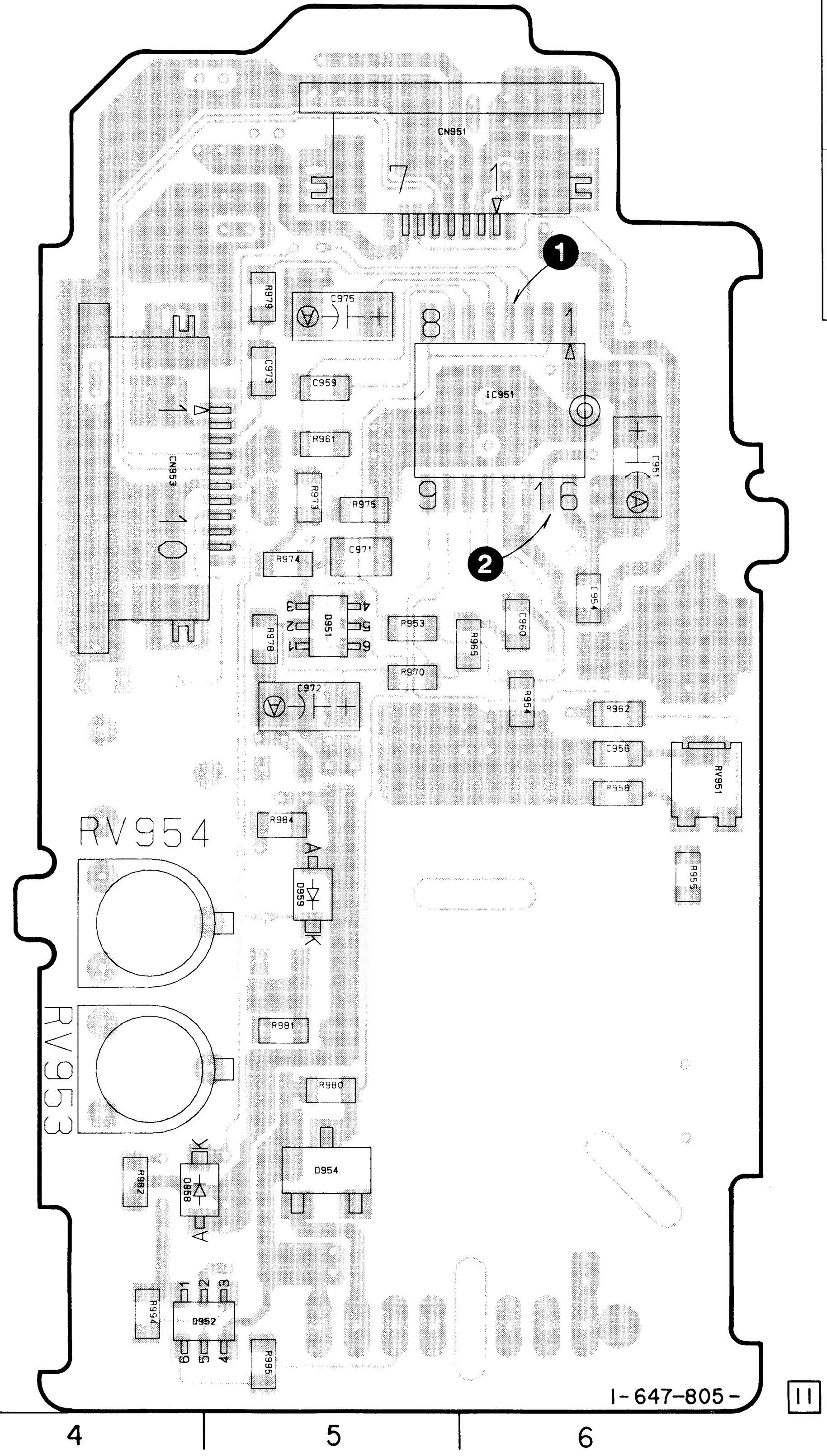
D951	8-719
D952	8-719
D954	8-719
D958	8-719
D959	8-719

VF-60 BOARD (COMPONENT SIDE)

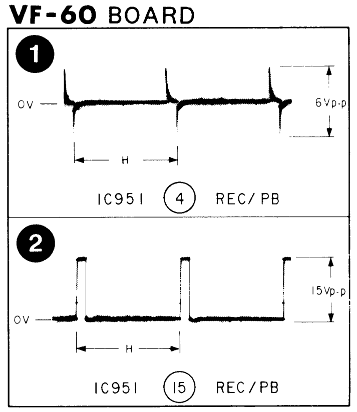

A
B
C
D
E
1
2
3
IC954
R957
C957
R968
R967
R966
R991
R992
R963
R960
R969
L953
R971
C955
C964
L952
C958
C960
C969
C970
T851
D952
CN955
1
8
1-647-805-
11

09

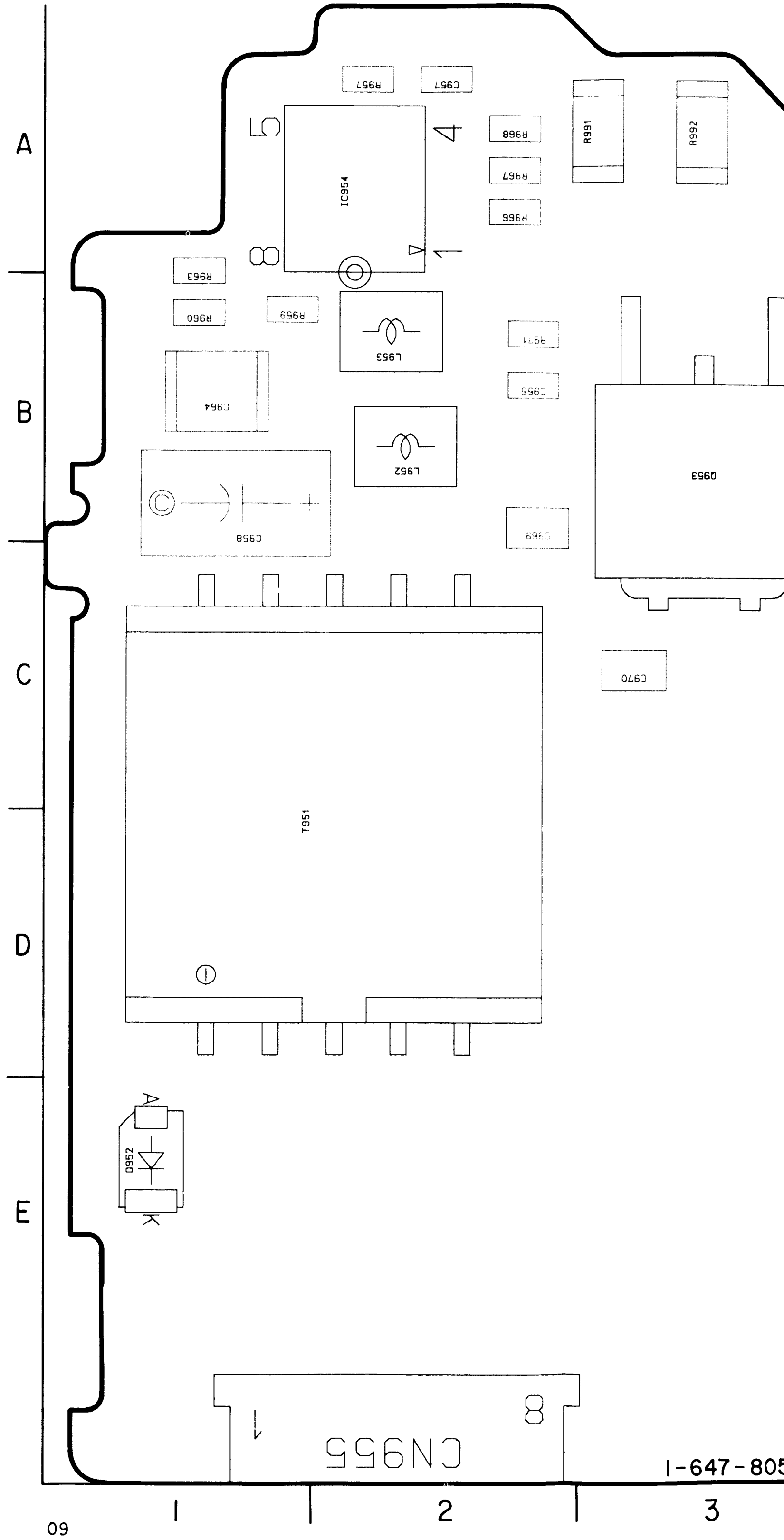
VF-60 BOARD (CONDUCTOR SIDE)


4
5
6
CN951
7
1
CN953
R979
C975
C973
C959
R961
IC951
8
1
9
16
C951
R973
R975
R974
C971
D951
R978
R953
R965
C963
R970
C954
C972
R954
R962
C956
R958
RV951
R955
RV954
R984
D959
RV953
R981
R980
D954
D960
R982
R994
D952
R995
1-647-805-
11

VF-60 BOARD



VF-60 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
IC954
L953
L952
T851
D952
CN955
1
8
1-647-805

09

ide seen from
d.
seen from the

< DIODE >

D951	8-719-025-84	DIODE	MA1S121
D952	8-719-404-19	DIODE	LN1251C
D954	8-719-802-36	DIODE	1SS250
D958	8-719-420-14	DIODE	MA8082
D959	8-719-420-14	DIODE	MA8082

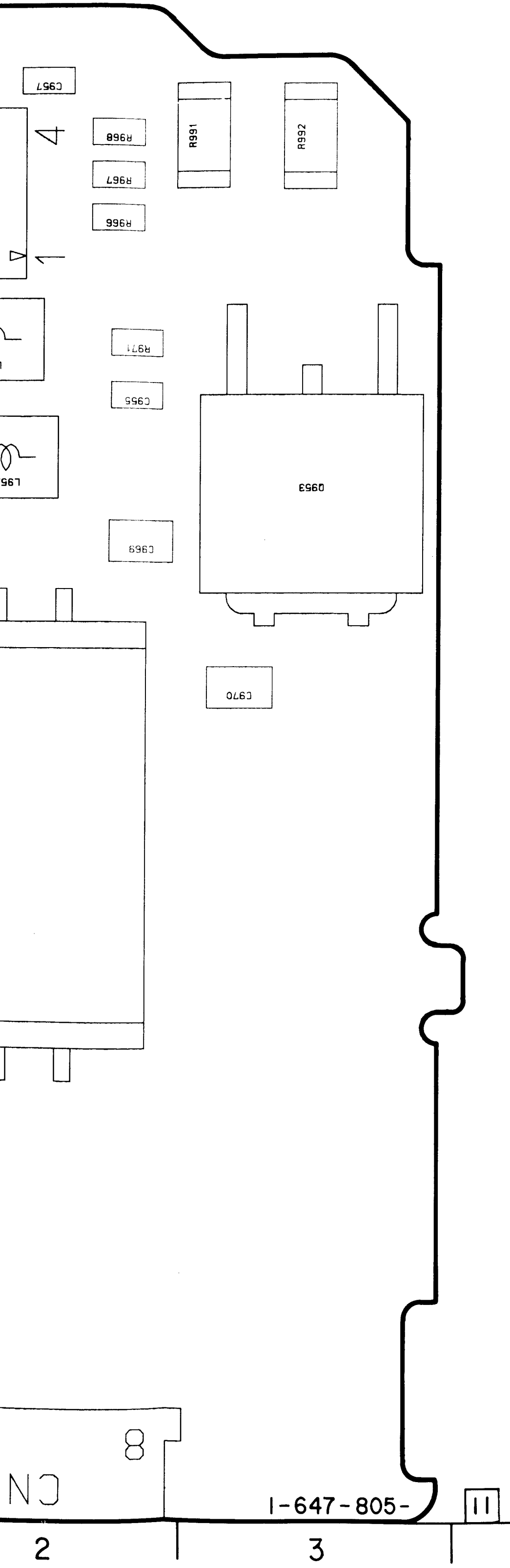
< IC >

IC951	8-759-097-75	IC	MB3789PFV-G-BND-ER
IC954	8-759-998-98	IC	LM358D

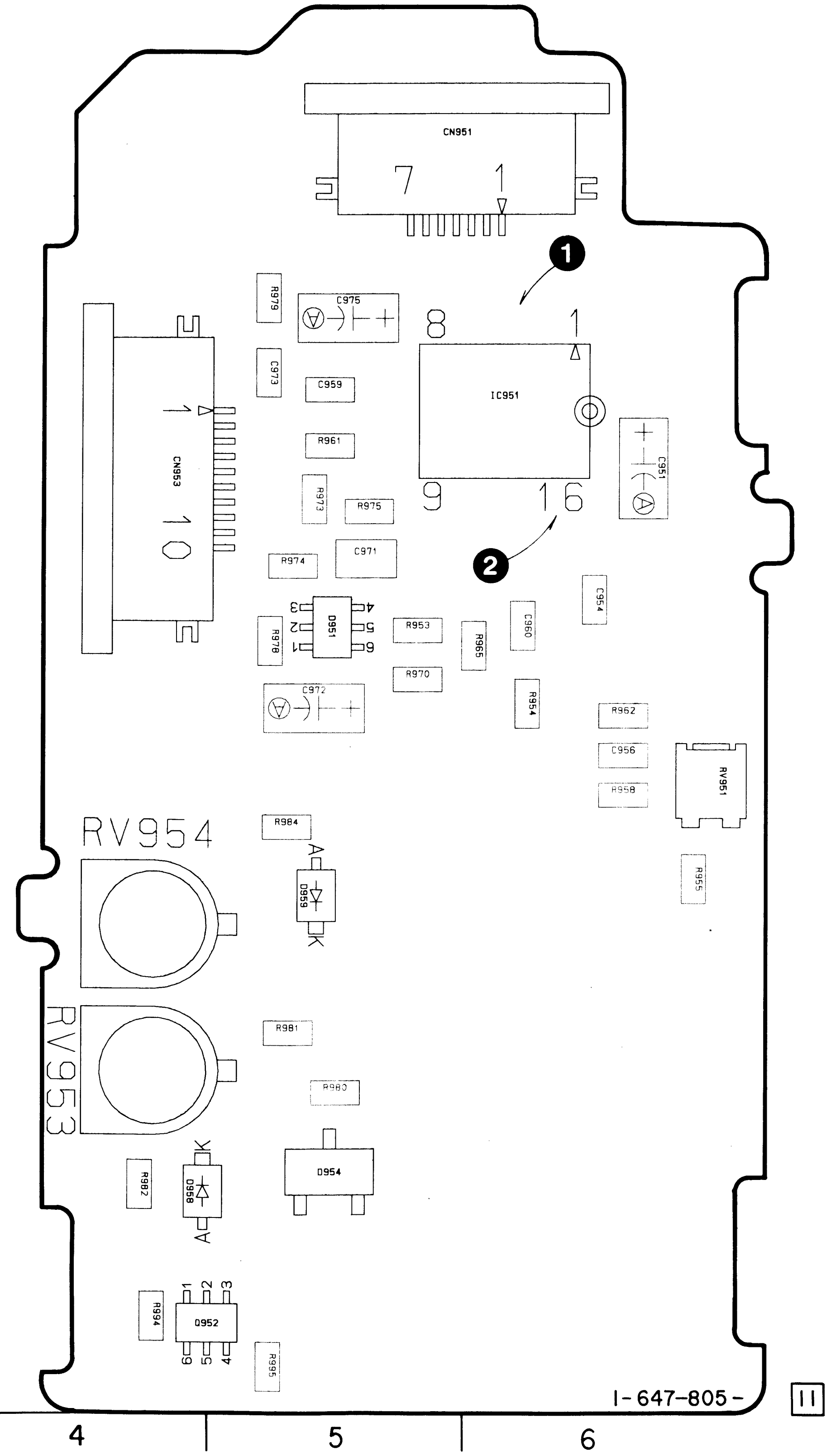
< TRANSISTOR >

Q952	8-729-427-74	TRANSISTOR	XP4601
Q953	8-729-015-64	TRANSISTOR	MTD9N10ET4

PONENT SIDE)


C957
R968
R967
R966
R991
R992
R971
C955
E960
C969
C970
4
1
8
CN
1-647-805-
11
2
3

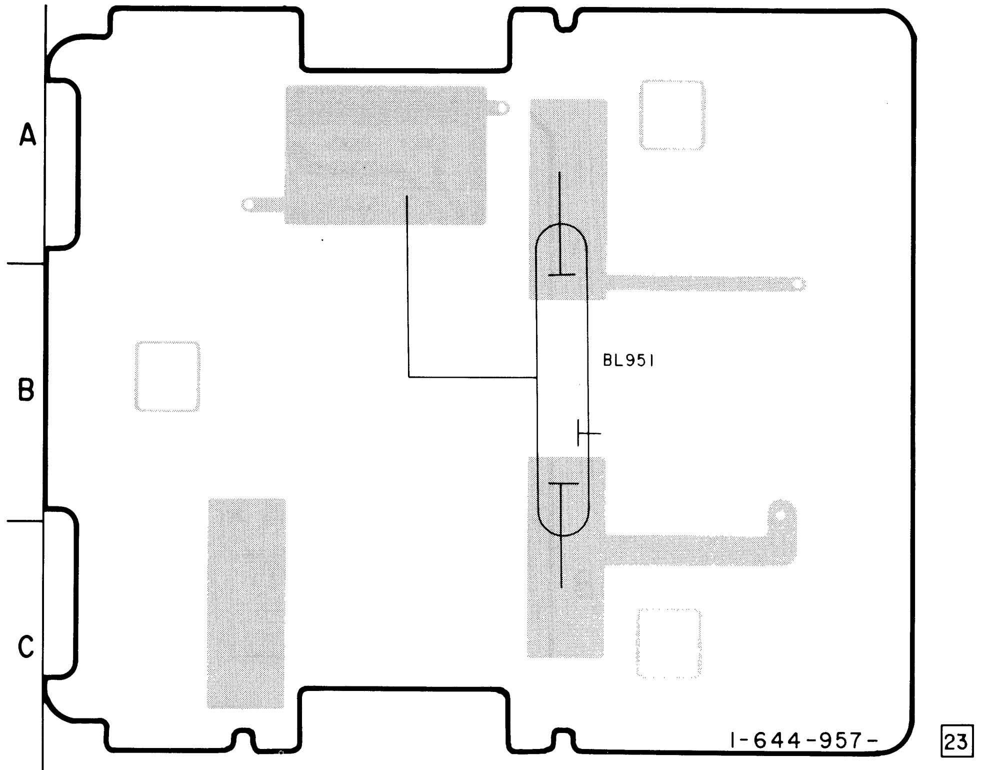
VF-60 BOARD (CONDUCTOR SIDE)


CN951
7
1
❶
❷
R979
C975
C973
C959
R961
IC951
8
1
9
16
C951
R973
R975
R974
C971
CN953
1
10
D951
R978
R953
R965
C960
C954
R970
C972
R954
R962
C956
R958
RV951
RV954
R984
D959
R955
RV953
R981
R983
R982
D958
D954
R994
Q952
R995
1-647-805-
11
4
5
6

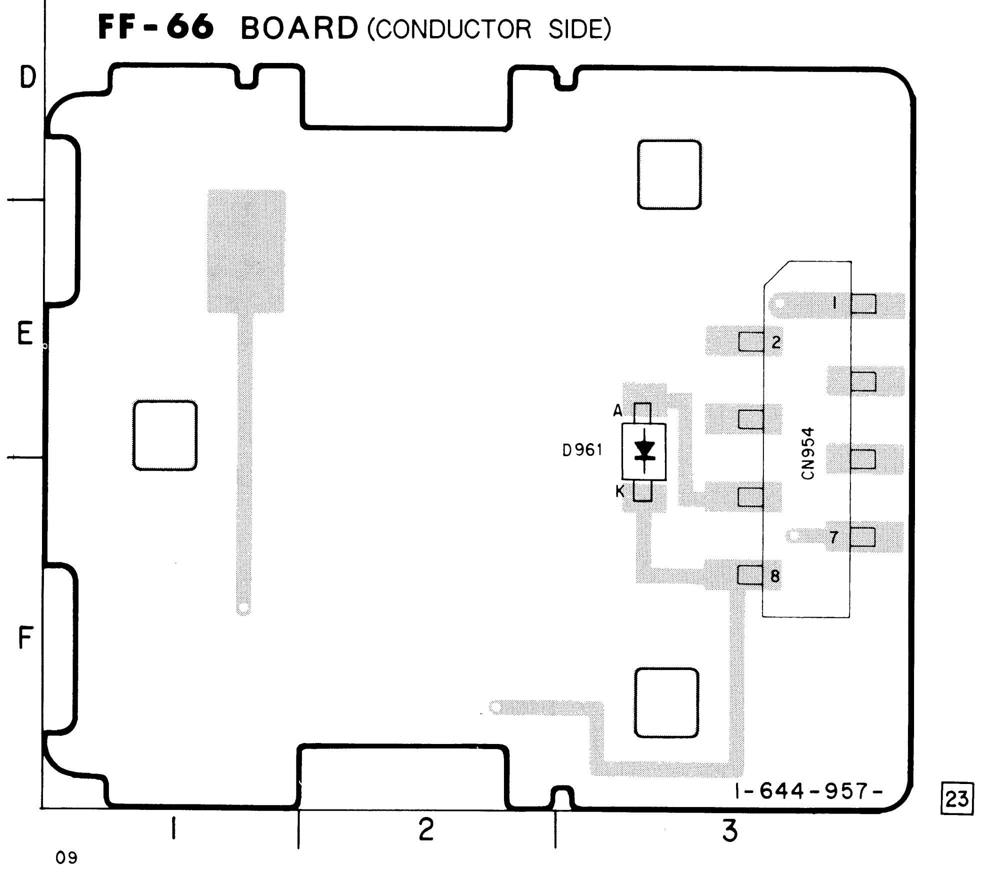
< DIODE >

D961	8-719-037-83	DIODE	LN1371G

FF-66 BOARD (COMPONENT SIDE)

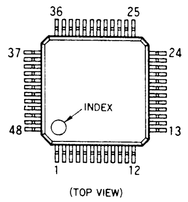

A
B
C
BL951
1-644-957-
23

FF-66 BOARD (CONDUCTOR SIDE)


D
E
F
D961
A
K
CN954
1
2
7
8
1-644-957-
23
1
2
3
09

4-3. SEMICONDUCTOR

CXD2114R


36
25
37
24
48
13
1
12
INDEX
(TOP VIEW)

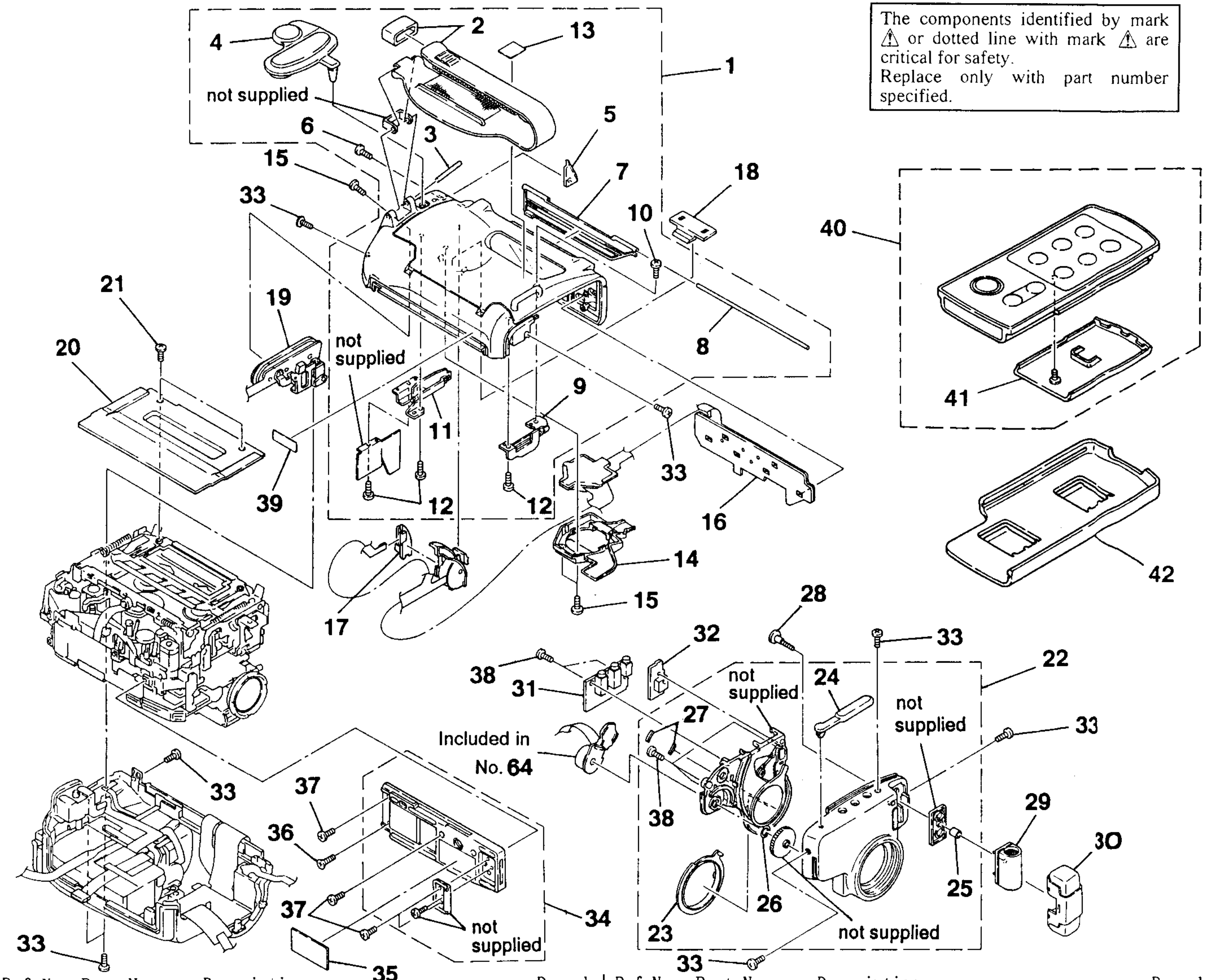
SECTION 5
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

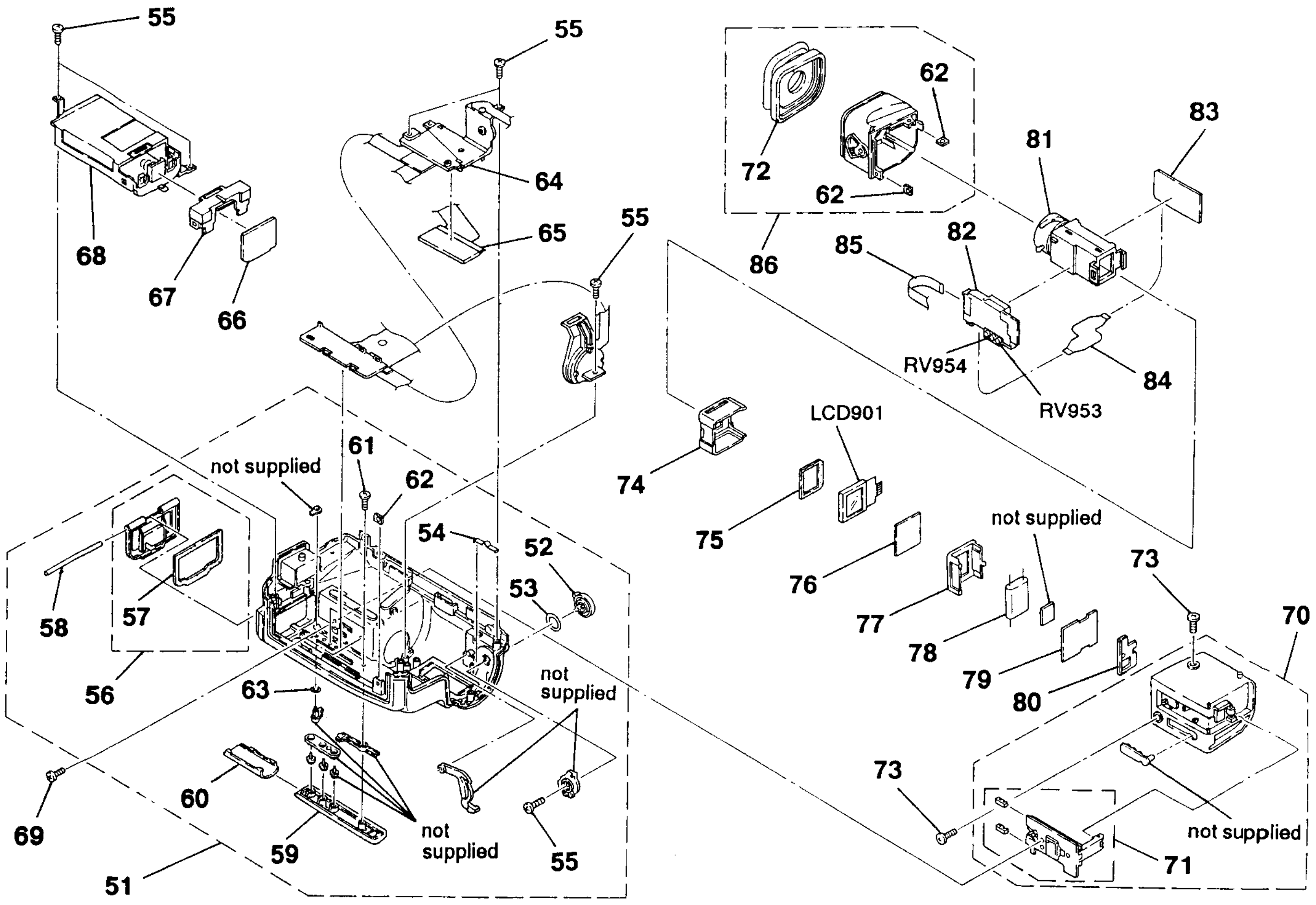
5-1. CABINET (L) AND F PANEL ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-3942-851-1	CABINET (L) ASSY (AEP, UK)	
1	X-3943-020-1	CABINET (L) ASSY (E, Australian, Tourist)	
2	3-948-905-01	BELT, GRIP	
3	3-948-913-01	SHAFT, BELT	
4	3-948-927-01	COVER, JACK	
5	3-948-922-01	BRACKET (L), STRAP	
6	3-713-786-01	SCREW (M2X4)	
7	3-948-921-01	COVER, FUNCTION	
* 8	3-950-507-01	SHAFT, F DOOR	
9	X-3942-230-1	ARM ASSY, FRONT LID	
10	3-719-381-31	SCREW (M2X3)	
11	X-3941-900-1	ARM ASSY, LID	
12	3-719-601-21	SCREW (B2X5), TAPPING	
* 13	3-703-713-41	STICKER, SONY SYMBOL (10)	
* 14	3-949-027-01	COVER, FK	
15	3-719-601-11	SCREW (B2X5), TAPPING	
16	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
17	A-7071-736-A	RE-23 BOARD, COMPLETE	
18	3-949-028-01	PLATE, ORNAMENTAL, CABINET (L)	
19	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO)	
* 20	3-949-026-11	CASE, CASSETTE	
21	3-728-126-11	SCREW (M1.4X2.5), SPECIAL HEAD	

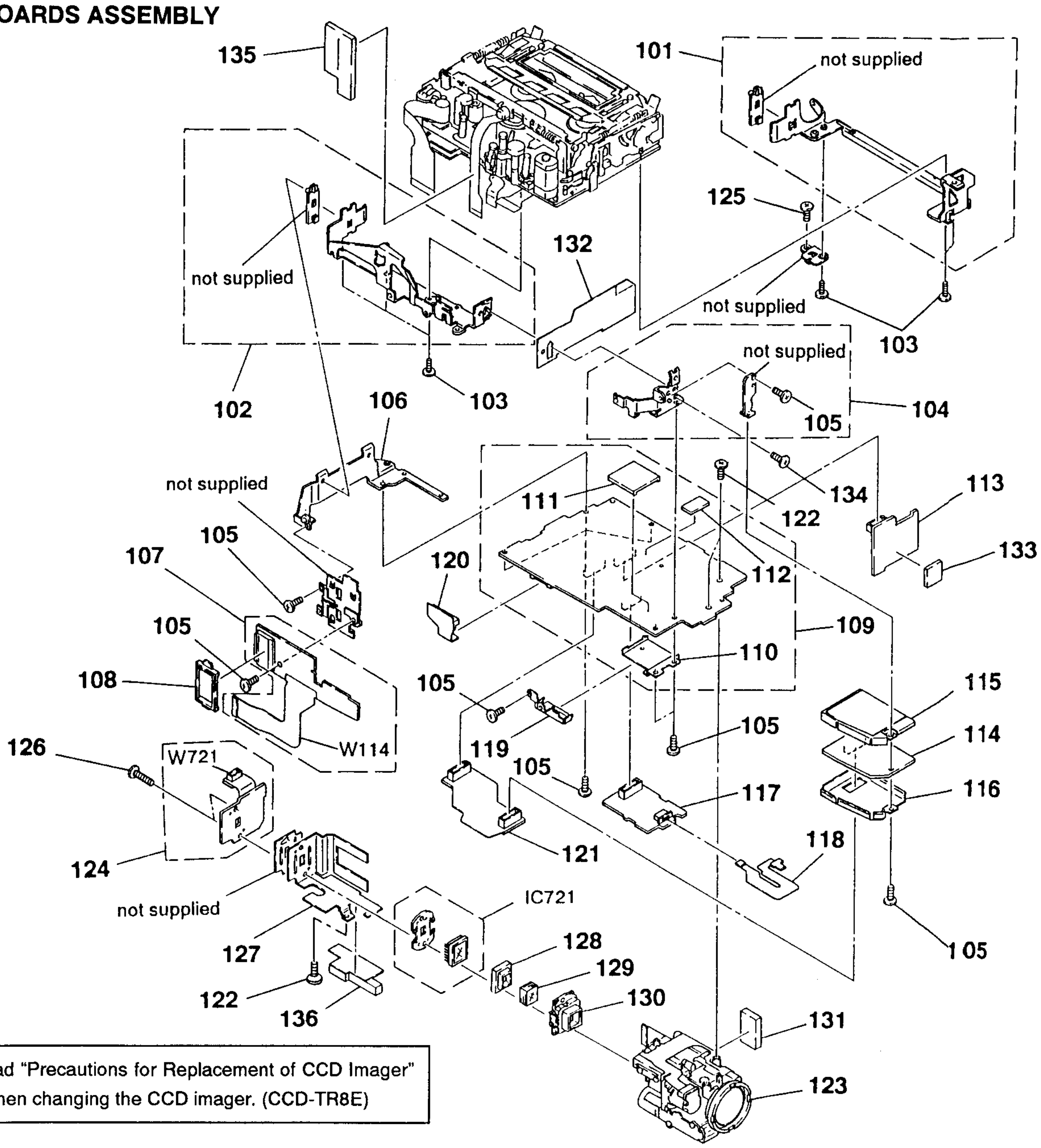
Ref. No.	Part No.	Description	Remark
22	X-3942-203-1	PANEL ASSY, F	
23	3-948-938-01	RING, DRIVING	
24	3-948-931-01	COVER (F), JACK	
25	3-657-842-01	SPACER (3X4)	
* 26	3-950-033-01	RING (7.4X5X1.2), O	
27	3-951-604-01	CUSHION (B), LENS	
28	3-950-590-01	SCREW (B2) (2X7), TAPPING	
29	1-542-190-21	MICROPHONE UNIT	
30	X-3941-910-1	GRILLE ASSY, WINDOW	
31	A-7071-735-A	MA-164 BOARD, COMPLETE	
32	A-7071-740-A	RE-22 BOARD, COMPLETE	
33	3-719-381-01	SCREW (M2X4)	
34	X-3942-550-1	CABINET (BOTTOM) ASSY	
* 35	3-953-171-01	LABEL, MODEL NUMBER (AEP)	
* 35	3-954-279-01	LABEL, MODEL NUMBER (EXCEPT AEP)	
36	3-724-437-01	SCREW (2X4)	
37	3-719-381-11	SCREW (M2X5)	
38	3-719-601-01	SCREW (B2X5), TAPPING	
* 39	3-704-235-01	LABEL, CAUTION (UK)	
40	1-693-192-21	REMOTE COMMANDER (RMT-703)	
41	3-950-097-01	COVER BATTERY, REMOCON	
42	3-950-096-01	HOLDER, REMOTE CONTROL	

5-2. CABINET (R) ASSEMBLY


55
55
62
83
81
72
64
62
68
65
55
85
82
86
67
66
RV954
84
RV953
LCD901
74
61
not supplied
62
54
52
75
not supplied
73
76
70
58
57
53
77
78
79
80
56
63
not
supplied
60
73
69
59
not
supplied
55
not supplied
71
51

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3942-202-1	CABINET (R) ASSY (E, Australian, Tourist)		70	X-3942-794-1	CABINET ASSY, EVF FRONT	
51	X-3942-205-1	CABINET (R) ASSY (AEP, UK)		71	X-3942-221-3	ARM ASSY, CLANK	
52	3-948-895-01	KNOB, POWER		72	3-948-956-01	EYE CUP	
53	3-379-467-01	RING (DIA. 9.4), O		73	3-719-381-01	SCREW (M2X4)	
54	3-948-896-01	SPRING, LEAF		74	3-949-017-01	HOLDER, LCD	
55	3-719-601-01	SCREW (B2X5), TAPPING		75	3-949-018-01	SPONGE, SEAL	
56	X-3942-286-1	LID ASSY, BATTERY		76	3-949-846-01	ILLUMINATOR, BL	
57	3-950-032-01	RUBBER (BATTERY), WATERPROOF		77	X-3942-788-1	HOLDER ASSY, BL	
58	3-948-864-01	SHAFT, BATTERY LID		78	1-519-746-11	TUBE, FLUORESCENT (0.07INCH)	
59	3-950-125-11	RAIL, COVER		79	A-7071-802-A	FF-66 BOARD, COMPLETE	
60	3-950-243-01	COVER, SLIDE		80	3-949-020-01	HOLDER (R), LCD	
61	3-719-845-01	SCREW (B2X4), TAPPING		81	X-3941-904-1	LENS ASSY, VF	
62	3-718-233-01	NUT, PLATE		82	A-7071-801-A	VF-60 BOARD, COMPLETE	
* 63	3-949-434-01	RING (4X3X0.5), O		83	A-7071-800-A	VF-59 BOARD, COMPLETE	
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)		84	1-644-945-11	FP-581 FLEXIBLE BOARD	
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL		85	1-644-942-11	FP-541 FLEXIBLE BOARD	
66	A-7071-739-A	FU-111 BOARD, COMPLETE		86	X-3942-795-1	CABINET ASSY, EVF REAR	
67	1-537-436-11	TERMINAL BOARD, BATTERY		LCD901	8-753-010-01	LCX004AK-1	
68	X-3942-229-1	HOLDER ASSY, BATTERY		RV953	1-238-167-11	RES, ADJ, CARBON 22K	
69	3-719-381-11	SCREW (M2X5)		RV954	1-238-167-11	RES, ADJ, CARBON 22K	

5-3. MAIN BOARDS ASSEMBLY


135
101
not supplied
125
132
not supplied
not supplied
103
102
106
103
not supplied
104
105
not supplied
111
134
113
122
105
107
120
112
133
109
105
110
108
115
105
105
114
126
W721
119
W114
105
117
116
118
124
121
IC721
not supplied
128
127
129
1 05
122
130
136
131
123

* Be sure to read "Precautions for Replacement of CCD Imager" on page 92 when changing the CCD imager. (CCD-TR8E)

Ref. No.	Part No.	Description	Remark
* 101	X-3941-906-1	HOLDER (UPPER) ASSY, MD	
* 102	X-3941-907-1	HOLDER (LOWER) ASSY, MD	
103	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
* 104	X-3941-908-1	FRAME (FRONT) ASSY	
105	3-713-786-51	SCREW (M2X3)	
* 106	3-949-022-01	FRAME (REAR)	
107	A-7071-738-A	EZ-3 BOARD, COMPLETE	
108	3-952-205-01	GUIDE, TERMINAL BOARD	
109	A-7092-057-A	VC-129 BOARD, COMPLETE	
* 110	3-949-011-01	CASE (A), SHIELD, RP	
* 111	3-949-023-01	CASE (B), SHIELD, RP	
* 112	1-646-828-11	DB-10 BOARD	
113	A-7071-734-A	LD-63 BOARD, COMPLETE	
114	A-7063-401-A	DD-54 BOARD, COMPLETE	
* 115	X-3942-610-1	CASE ASSY (P), SHIELD, DD	
* 116	X-3942-609-1	LID ASSY (P), SHIELD CASE, DD	
117	A-7063-402-A	AU-146 BOARD, COMPLETE	
118	1-644-941-11	FP-540 FLEXIBLE BOARD	
* 119	3-950-358-01	LID, RP CONNECTOR	
120	1-644-943-11	FP-550 FLEXIBLE BOARD	
121	1-644-947-11	FP-537 FLEXIBLE BOARD	
122	3-719-845-01	SCREW (B2X4), TAPPING	
123	8-848-700-01	DEVICE, LENS LSV-100A	
124	A-7071-733-A	CD-101 BOARD, COMPLETE	
125	3-719-601-01	SCREW (B2X5), TAPPING	
126	3-947-268-11	SCREW (B TIGHT) (2X7.5), TAPPING	
* 127	3-949-025-01	HEAT SINK, CD	
128	3-949-283-01	RUBBER (2), SEAL	
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
130	3-949-282-01	ADAPTOR (EM), CCD FITTING	
131	3-951-443-01	CUSHION (A), LENS	
132	3-951-869-01	SHEET, FRONT	
133	3-951-871-02	SPACER, LD	
134	3-719-381-01	SCREW (M2X4)	
135	3-951-878-01	CUSHION, D FLEXIBLE	
136	3-951-879-01	CUSHION	
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	
IC721	A-7030-371-A	CCD BLOCK ASSY (ICX059AK-2) (CCD IMAGER)	

FF-66 **VF-59**

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
*	A-7071-802-A	FF-66 BOARD, COMPLETE *********************	
		(Ref. No. 8,000 Series)	
		< CONNECTOR >	
CN954	1-568-327-11	CONNECTOR, BOARD TO BOARD 8P	
		< DIODE >	
D961	8-719-037-83	DIODE LN1371G	
******	******	**	
*	A-7071-800-A	VF-59 BOARD, COMPLETE *********************	
		(Ref. No. 6,000 Series)	
		< CAPACITOR >	
C804	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C805	1-135-091-00	TANTALUM CHIP 1uF 20%	16V
C806	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C807	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C808	1-135-145-11	TANTALUM CHIP 0.47uF 10%	35V
C809	1-164-346-11	CERAMIC CHIP 1uF	16V
C810	1-164-346-11	CERAMIC CHIP 1uF	16V
C811	1-164-346-11	CERAMIC CHIP 1uF	16V
C812	1-135-179-21	TANTAL. CHIP 2.2uF 20%	16V
C813	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C814	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C815	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C818	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C823	1-164-346-11	CERAMIC CHIP 1uF	16V
C824	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C825	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C828	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C829	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C830	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C832	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C833	1-164-361-11	CERAMIC CHIP 0.047uF	16V
C834	1-164-361-11	CERAMIC CHIP 0.047uF	16V
C835	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C836	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C837	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C838	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C839	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C840	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C842	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C843	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C844	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C845	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C846	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C847	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C848	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C849	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C850	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C851	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C852	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C853	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C854	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C856	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C857	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C859	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C860	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C867	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C868	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C869	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C870	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C871	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C872	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C873	1-164-005-11	CERAMIC CHIP 0.47uF	25V
		< CONNECTOR >	
* CN801	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P	
* CN802	1-573-925-11	CONNECTOR, FFC/FPC (ZIF) 16P	
* CN803	1-573-350-11	CONNECTOR, FFC/FPC 10P	
		< DIODE >	
D801	8-719-025-91	DIODE MA365	
		< IC >	
IC801	8-752-058-96	IC CXA1585Q	
IC802	8-752-058-95	IC CXA1515Q	
IC803	8-752-352-10	IC CXD2121N	
IC804	8-752-349-21	IC CXD2114R	
		< COIL >	
L801	1-414-078-11	INDUCTOR 10uH	
L802	1-414-078-11	INDUCTOR 10uH	

Ref. No.	Part No.	Description	Remark
L803	1-414-078-11	INDUCTOR 10uH	
L805	1-412-960-21	INDUCTOR 56uH	
L806	1-412-960-21	INDUCTOR 56uH	
L807	1-412-960-21	INDUCTOR 56uH	
L808	1-412-951-11	INDUCTOR 10uH	
L809	1-412-960-21	INDUCTOR 56uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q801	8-729-425-64	TRANSISTOR 2SD2216Q	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R801	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R802	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R803	1-218-955-11	METAL GLAZE 1.5K 5% 1/16W	
R805	1-218-857-11	METAL CHIP 2.7K 0.50% 1/16W	
R806	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R807	1-218-865-11	METAL CHIP 5.6K 0.50% 1/16W	
R808	1-218-956-11	METAL GLAZE 1.8K 5% 1/16W	
R809	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R810	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R811	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R812	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R813	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R814	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R815	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R816	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R817	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R818	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R819	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R820	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R821	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R822	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R823	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R825	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R826	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R827	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R828	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R829	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R830	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R832	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R833	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R834	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R835	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R836	1-218-976-11	METAL GLAZE 82K 5% 1/16W	
R837	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R838	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R839	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R840	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R841	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R842	1-218-971-11	METAL GLAZE 33K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R844	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R847	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R849	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R850	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R851	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R852	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R853	1-218-952-11	METAL GLAZE 820 5% 1/16W	
R854	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R855	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R856	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R857	1-218-990-11	METAL GLAZE 0 5% 1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV801	1-241-480-11	RES, ADJ, CERMET 47K	
RV802	1-241-480-11	RES, ADJ, CERMET 47K	
RV803	1-241-480-11	RES, ADJ, CERMET 47K	
RV804	1-241-480-11	RES, ADJ, CERMET 47K	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X801	1-579-661-21	OSCILLATOR, CRYSTAL 4.43MHz	

****

* A-7071-801-A VF-60 BOARD, COMPLETE

****

(Ref. No. 7,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C951	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C954	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C955	1-164-676-11	CERAMIC CHIP 2200PF 5% 16V	
C956	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C957	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C958	1-135-089-21	TANTALUM CHIP 6.8uF 10% 20V	
C959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C960	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C964	1-164-836-11	CERAMIC CHIP 6.8uF 16V	
C969	1-163-018-00	CERAMIC CHIP 0.0056uF 5% 50V	
C970	1-163-018-00	CERAMIC CHIP 0.0056uF 5% 50V	
C971	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C972	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C973	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	
C975	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN951	1-573-347-11	CONNECTOR, FFC/FPC 7P	
* CN953	1-573-350-11	CONNECTOR, FFC/FPC 10P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D951	8-719-025-84	DIODE MA1S121	
D952	8-719-404-19	DIODE LN1251C	

VF-60

Ref. No.	Part No.	Description	Remark
D954	8-719-802-36	DIODE 1SS250	
D958	8-719-420-14	DIODE MA8082	
D959	8-719-420-14	DIODE MA8082	
		< IC >	
IC951	8-759-097-75	IC MB3789PFV-G-BND-ER	
IC954	8-759-998-98	IC LM358D	
		< COIL >	
L952	1-412-029-11	INDUCTOR CHIP 10uH	
L953	1-412-030-11	INDUCTOR CHIP 22uH	
		< TRANSISTOR >	
Q952	8-729-427-74	TRANSISTOR XP4601	
Q953	8-729-015-64	TRANSISTOR MTD9N10ET4	
		< RESISTOR >	
R953	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R954	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R955	1-216-819-11	METAL CHIP 680 5% 1/16W	
R957	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R958	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R959	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R960	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R961	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R962	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R963	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R965	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R966	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R967	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R968	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R970	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R971	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R973	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R974	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R975	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R978	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R979	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R980	1-216-804-11	METAL CHIP 39 5% 1/16W	
R981	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R982	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R983	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R984	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R991	1-216-296-00	METAL CHIP 0 5% 1/8W	
R992	1-216-296-00	METAL CHIP 0 5% 1/8W	
R994	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R995	1-216-794-11	METAL CHIP 5.6 5% 1/16W	
		< VARIABLE RESISTOR >	
RV951	1-241-480-11	RES, ADJ, CERMET 47K	

Ref. No.	Part No.	Description	Remark
RV953	1-238-167-11	RES, ADJ, CARBON 22K	
RV954	1-238-167-11	RES, ADJ, CARBON 22K	
		< TRASFORMER >	
T951	1-450-900-11	TRANSFORMER, INVERTER	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description
16	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)
19	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO)
29	1-542-190-21	MICROPHONE UNIT
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL
67	1-537-436-11	TERMINAL BOARD, BATTERY
78	1-519-746-11	TUBE, FLUORESCENT (0.07INCH)
84	1-644-945-11	FP-581 FLEXIBLE BOARD
85	1-644-942-11	FP-541 FLEXIBLE BOARD
118	1-644-941-11	FP-540 FLEXIBLE BOARD
120	1-644-943-11	FP-550 FLEXIBLE BOARD
121	1-644-947-11	FP-537 FLEXIBLE BOARD
123	8-848-700-01	DEVICE, LENS LSV-100A
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)
224	1-645-057-11	FP-574 FLEXIBLE BOARD
328	1-645-056-12	FP-573 FLEXIBLE BOARD
IC721	A-7030-371-A	CCD BLOCK ASSY (ICX059AK-2)(CCD IMAGER)
LCD901	8-753-010-01	LCX004AK-1
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80B-R)
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)
M903	1-541-607-21	MOTOR, DC (LA12G-344VA)(LOADING)
M904	1-547-574-11	IRIS (IRX-002)
M906	8-835-491-01	MOTOR, STEPPING (SPB-01S01N)(ZOOM)
RV953	1-238-167-11	RES, ADJ, CARBON 22K
RV954	1-238-167-11	RES, ADJ, CARBON 22K
S991	1-572-611-11	SWITCH, LEAF (C LOCK)
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi8 MP)
W114	1-644-946-11	FP-605 FLEXIBLE BOARD
W721	1-644-944-11	FP-580 FLEXIBLE BOARD

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (E, Tourist)
⚠	1-573-291-11	CONNECTOR, CONVERSION (AEP, UK)
	1-575-334-11	CORD, CONNECTION (A/V connecting cable)
	1-575-335-21	CORD, CONNECTION (S VIDEO connecting cable)
	1-693-192-21	REMOTE COMMANDER (RMT-703)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
	1-696-713-11	CORD, CONNECTION (FOR AC-V500)	
	3-712-673-01	SCREWDRIVER (E, Tourist)	
	3-738-517-01	BELT (S), SHOULDER	
	3-755-534-11	MANUAL, INSTRUCTION (ENGLISH)(AEP, UK)	
	3-755-534-41	MANUAL, INSTRUCTION (FRENCH, DUTCH)(AEP)	
	3-755-534-51	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (AEP)	
	3-755-534-61	MANUAL, INSTRUCTION (SPANISH, SWEDISH) (AEP)	
	3-756-028-41	MANUAL, INSTRUCTION (FOR HSA-V500) (ENGLISH, FRENCH, SPANISH, GERMAN)	
	3-756-028-51	MANUAL, INSTRUCTION (FOR HSA-V500) (DUTCH, SWEDISH, ITALIAN, CHINESE)(AEP, E, Tourist)	
	3-756-939-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (E, Tourist)	
	3-756-939-61	MANUAL, INSTRUCTION (FRENCH, GERMAN) (E, Tourist)	
	3-756-939-71	MANUAL, INSTRUCTION (ARABIC)(E)	
	3-756-939-81	MANUAL, INSTRUCTION (CHINESE)(E, Tourist)	
	3-756-939-91	MANUAL, INSTRUCTION (ENGLISH) (Australian)	
*	3-949-134-01	CUSHION (LOWER)	
	3-950-096-01	HOLDER, REMOTE CONTROL	
*	3-950-399-01	CUSHION, ACC	
*	3-952-954-11	INDIVIDUAL CARTON	
	A-6767-706-A	RFU ADAPTOR (RFU-89EA)(E, Tourist)	
	A-6768-255-A	RFU ADAPTOR (RFU-90AS)(Australian)	
**	AC-V500	AC POWER ADAPTOR	
**	HSA-V500	HANDYCAM STATION	
***	NP-500	BATTERY PACK	

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Differences table of VC-129 board.

CCD-TR8E				CCD-TR1E			
Ref. No	Part No.	Description	Remark	Ref. No	Part No.	Description	Remark
	A-7063-403-A	VC-129 BOARD, COMPLETE ********************* (Ref. No. 2,000 Series)			A-7092-057-A	VC-129 BOARD, COMPLETE ********************* (Ref. No. 2,000 Series)	
		< CAPACITOR >				< CAPACITOR >	
C327	————	————		C327	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
		< RESISTOR >				< RESISTOR >	
R301	————	————		R301	1-218-954-11	METAL GLAZE 1.2K 5% 1/16W	
R344	————	————		R344	1-216-864-11	METAL CHIP 0 5% 1/16W	

SECTION 7
CAMERA SECTION ADJUSTMENTS

7-1. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

Note 1: The backlight (fluorescent tube) is driven by a 800 Vp-p, 16 kHz AC power supply.
Therefore, be careful not to touch the backlight holder as you will receive an electric shock.

Note 2: When replacing the LCD unit, ensure there will be no damages by static electricity.

[Adjusting connector]

Most measuring points for adjusting the view-finder are concentrated at CN801 of the VF-59 board. Connect the measuring equipments via the measuring pin tool. The following table lists the pin numbers and signal names of CN901.

Pin No.	Signal Name	Pin No.	Signal Name
1	LC COM	2	EVF GND
3	G OUT	4	13.5V
5	SELFR	6	12V
7	R OUT	8	B OUT
9	BRIGHT	10	PCO

Table 7-1.

Measuring pin tool	Parts Code: J-6082-192-A

[Positions of RVs during adjustments]

Unless specified otherwise, set RVs to the following positions and adjust.

RV953 (BRIGHT) ········· Refer to "BRIGHT Adjustment"
RV954 (COLOR) ·········· Mechanical center

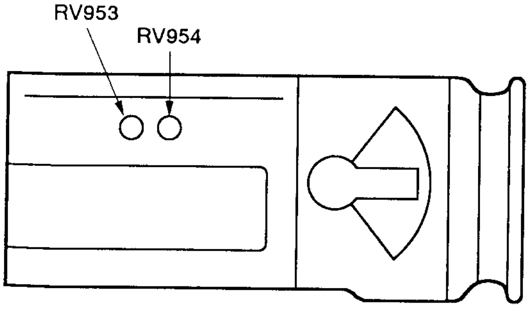


Fig. 7-1.

[Power Supply Voltage]

Adjust the power supply voltage for the battery pin so that Pin ① (EVF UNREG) of CN951 of the VF-60 board becomes 6.0 ± 0.1 Vdc.

[Video Input Signal for Adjusting]

If the signal column specifies "Color bar signal whose chroma signal and burst signal are turned off", input a color bar signal whose chroma signal and burst signal have been turned off to the video input pin as the video input signal for adjusting. Check that the signal level of Pin ⑤ of CN951 of the VF-60 board is 0.9 ± 0.12 Vp-p before adjusting.

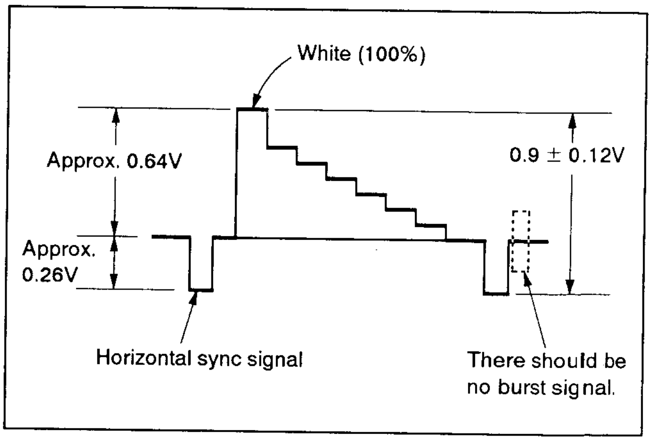


Fig. 7-2. Color bar signal whose chroma signal and burst signals are turned off

1. Current consumption adjustment (VF-60 board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Remove L953 and measure +: Pin ① of CN951 –: ⊕ pin of C958
Measuring Instrument	Ammeter
Adjustment Element	RV951
Specified Value	72 ± 5 mA

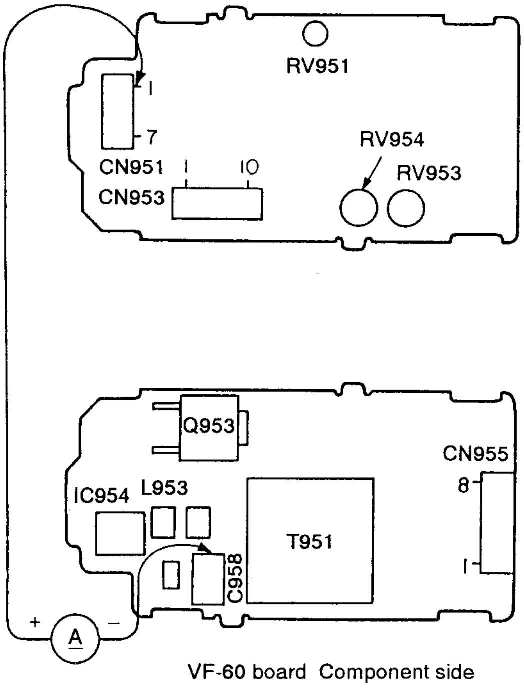
Note 1: Adjust within 30 secs. after the power supply has been turned on.

Note 2: After adjusting, connect L953.

Adjusting method:

Order	Procedure
1	Check that the voltage of Pin ① of CN951 is 6.0 ± 0.1 Vdc.
2	Adjust the current consumption to 72 ± 5 mA with RV951.

VF-60 board Conductor side



VF-60 board Component side

Fig. 7-3.

2. Power supply voltage check (VF-59 Board)

Mode	Record
Measuring Instrument	Digital voltmeter
+12V check	
Measurement Point	Pin ⑥ of CN801 (12V)
Specified Value	+12.0 ± 0.3 Vdc
+13.5V check	
Measurement Point	Pin ④ of CN801 (13.5V)
Specified Value	+13.5 ± 0.3 Vdc

Checking Method:

Order	Procedure
1	Check that the UNREG power supply voltage (Pin ① of VF-60 board CN951) of CN951 is 6.0 ± 0.1 Vdc.
2	Check that each power supply voltage satisfies the specified value.

3. VCO adjustment (VF-59 Board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Pin ⑩ of CN801 (PCO)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Element	RV804
Specified Value	A=2.8 ± 0.1V

Adjusting method:

Order	Procedure
1	Check the GND level of the oscilloscope.
2	Adjust the PCO voltage (A) to the specified value with RV804.

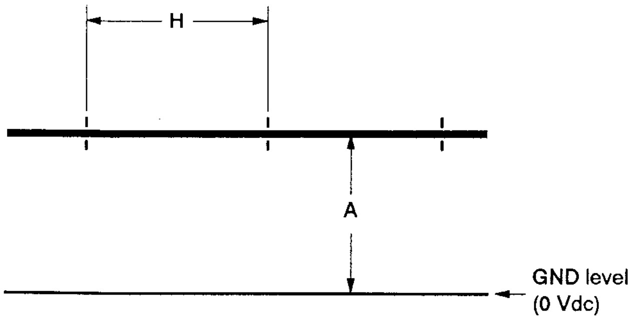
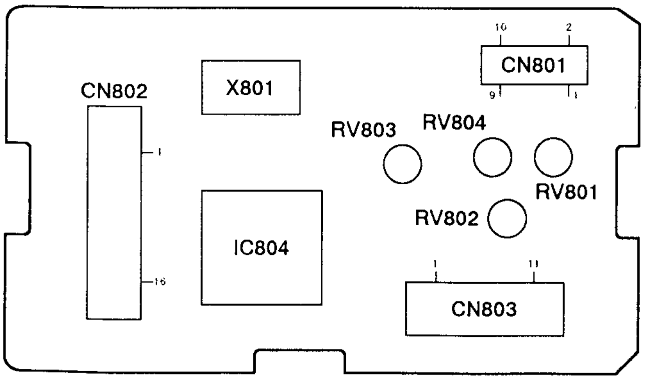

H
A
GND level
(0 Vdc)

Fig. 7-4.


10
2
CN801
9
1
CN802
X801
1
16
RV803
RV804
RV801
RV802
IC804
1
11
CN803

VF-59 board Component side

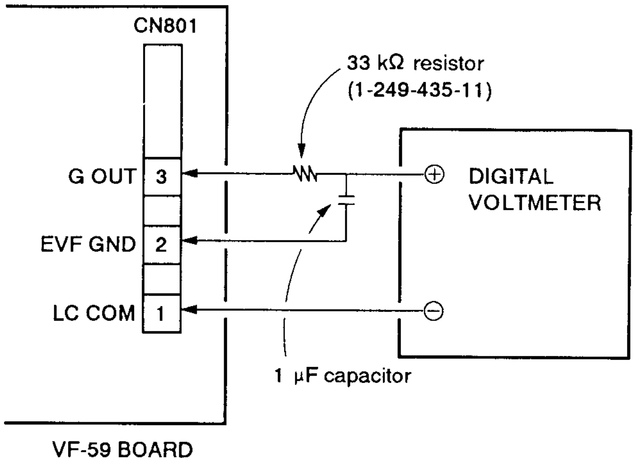
Fig. 7-5.

4. LC COM voltage adjustment (VF-59 Board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	+: Pin ③ of CN801 (G OUT) –: Pin ① of CN801 (LC COM)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV801
Specified Value	A=+0.3 ± 0.1 Vdc

Connection:

1) Connect the digital voltmeter as shown in the following figure.


CN801
33 kΩ resistor
(1-249-435-11)
G OUT
3
EVF GND
2
LC COM
1
⊕
⊖
DIGITAL
VOLTMETER
1 µF capacitor
VF-59 BOARD

Adjusting method:

Order	Procedure
1	Adjust the voltage difference (A) to the specified value with RV801.

5. BRIGHT adjustment (VF-60 Board)

Mode	Record
Signal	No signal
Measurement Point	Pin ③ of CN801 of VF-59 board (G OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV953
Specified Value	A=7.0 ± 0.1V

Adjusting method:

Order	Procedure
1	Adjust the potential difference (A) between the reversed waveform pedestal and the non reversed waveform pedestal to the specified value with RV953.

Related Adjustments:
"SUB BRIGHT R Preset Adjustment", "SUB BRIGHT B Preset Adjustment", "White Balance Adjustment".

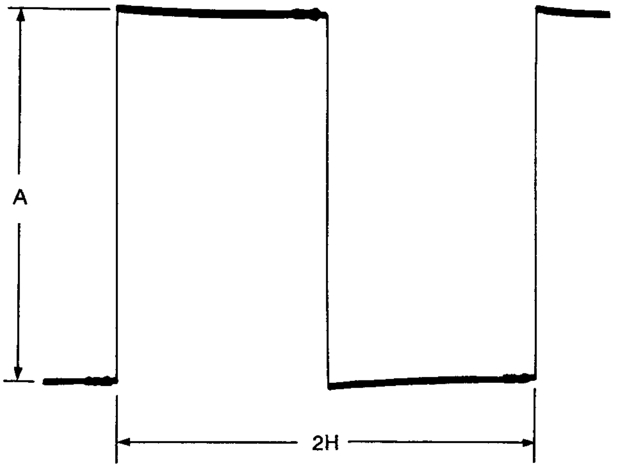
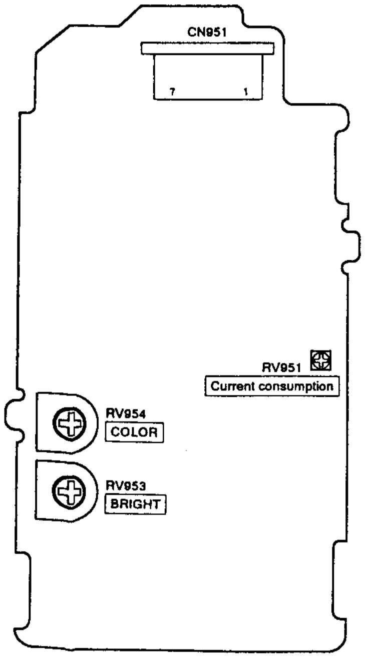


Fig. 7-6.

VF-60 board Component side


CN951
7
1
RV951
Current consumption
RV954
COLOR
RV953
BRIGHT

6. CONTRAST check (VF-59 Board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Pin ③ of CN801 (G OUT)
Measuring Instrument	Oscilloscope
Specified Value	A=2.1 ± 0.1V

Checking method:

Order	Procedure
1	Check that the white 100% level (A) is the specified value.

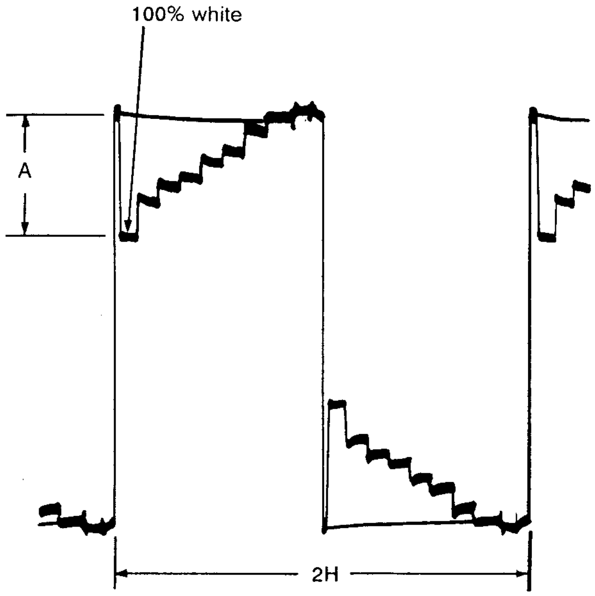
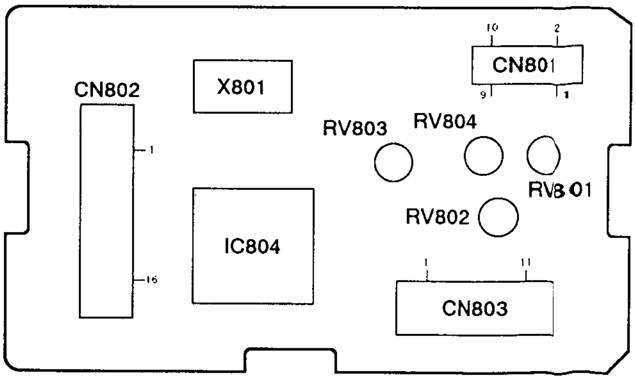


Fig. 7-7.


CN802
1
16
X801
IC804
RV803
RV804
RV801
RV802
CN801
10
2
9
1
CN803
1
11

VF-59 board Component side

7. SUB BRIGHT R preset adjustment (VF-59 Board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN801 (R OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV802
Specified Value	A=7.1 ± 0.1V

Adjusting method:

Order	Procedure
1	Adjust the potential difference (A) between the reversed waveform pedestal and the non reversed waveform pedestal to the specified value with RV802.

Related Adjustments:
"SUB BRIGHT B Preset Adjustment", "White Balance Adjustment".

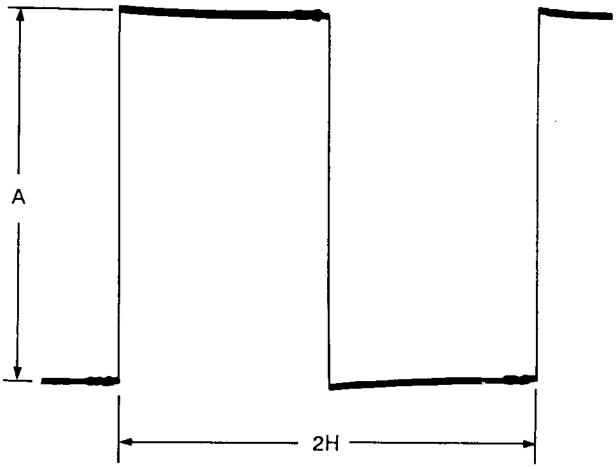


Fig. 7-8.

8. SUB BRIGHT B preset adjustment (VF-59 Board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of CN801 (B OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV803
Specified Value	A=7.1 ± 0.1V

Adjusting method:

Order	Procedure
1	Adjust the potential difference (A) between the reversed waveform pedestal and the non reversed waveform pedestal to the specified value with RV803.

Related Adjustments:
"White Balance Adjustment".

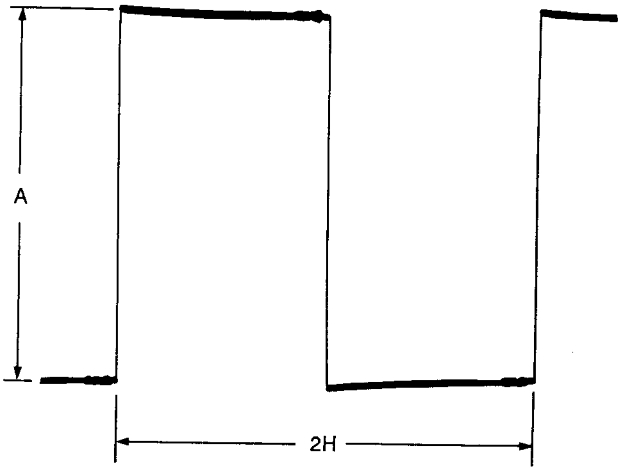


Fig. 7-9.

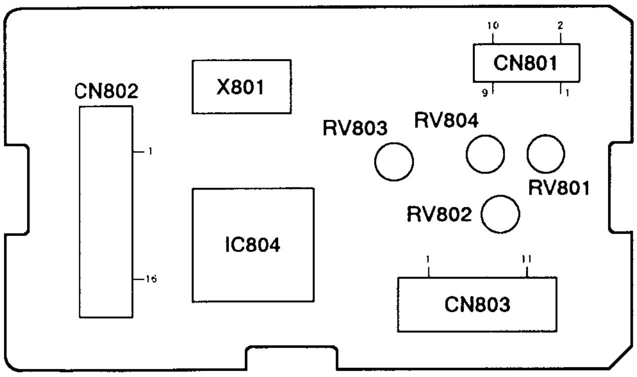
9. White balance adjustment (VF-59 Board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Element	R: RV802 B: RV803
Specified Value	Picture should not be colored

Note: Turn on the power supply and adjust after more than one minute.

Adjusting method:

Order	Procedure
1	Check that the LCD display is not colored. If it is, adjust RV802 and RV803.


10
2
CN801
9
1
CN802
X801
RV803
RV804
RV801
RV802
1
16
IC804
1
11
CN803

VF-59 board Component side

Sony Corporation
Personal Video Group

English
93C0989-1
Printed in Japan
© 1993. 3
Published by CV Quality Engineering DIV.

CCD-TR1E
RMT-703

SONY
SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model

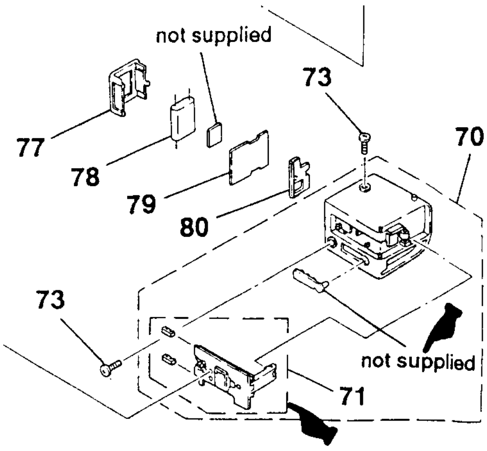
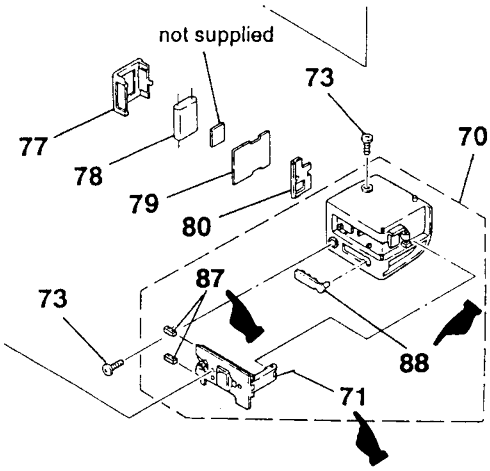
CORRECTION-1

Please correct your Service manual.

EXPLODED VIEW

SECTION 5-2. CABINET (R) ASSEMBLY : page 46

☛ : Corrected portion

INCORRECT	CORRECT
 not supplied 73 77 70 78 79 80 73 not supplied 71	 not supplied 73 77 70 78 79 80 87 73 88 71 Add. 87 3-948-948-02 SPRING, FRICTION 88 3-953-337-01 COVER, VOLUME

9-972-363-91

Sony Corporation
Consumer A&V Products Company
Personal A&V Products Div.

English
94G0989-1
Printed in Japan
© 1994. 7
Published by Personal A&V Products Div.
Quality Engineering Dept.

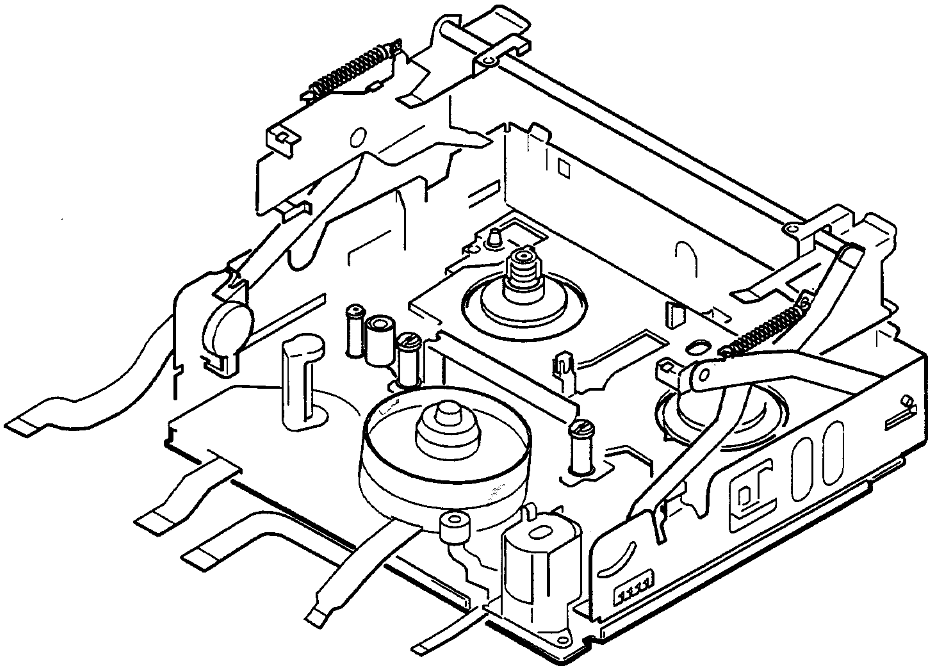
8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

V13917

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

TABLE OF CONTENTS

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

1-1. Cassette Compartment Block Assy ················ 3

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed ·············· 4

2. PERIODIC CHECK AND MAINTENANCE ITEMS

2-1. Rotary Drum Assy Cleaning ···················· 5

2-2. Tape Path Cleaning ···························· 5

2-3. Periodic Check Items ························· 6

2-4. Service Tool List ······························ 7

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy ························· 8

3-2. Drum Assy ·································· 9

3-3. Drum Base Block Assy, Shaft Ground ············ 10

3-4. Gooseneck Retainer, Gooseneck Gear Assy ········ 11

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy ·················· 12

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy ························ 15

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm ················ 16

3-8. Pinch Arm Assy, TG4 Arm Block Assy ············ 17

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide ························· 18

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail ································· 19

3-11. DC Motor Assy (Loading) ······················ 21

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy ······························ 22

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate ······················ 23

3-14. Cam Gear ································ 24

3-15. GL Slider Assy, GL Arm ····················· 25

3-16. Rotary Switch ····························· 26

3-17. Capstan Motor ···························· 27

3-18. Tension Regulator Position Adjustment ············ 28

3-19. FWD Tape Hold -Back Tension Adjustment ········ 29

4. TAPE PATH ADJUSTMENT

4-1. Preparations for Adjustment ···················· 30

4-2. Tracking Adjustment ························· 31

4-3. No. 4 Guide (TG-4) Adjustment ················ 31

4-4. CUE, REV Waveforms Check ················· 32

4-5. Checks After Adjustments ····················· 32

5. EXPLODED VIEWS

5-1. Cassette Compartment Block Section ············· 34

5-2. LS Chassis Block Section ······················ 35

5-3. Mechanism Chassis Block Section ··············· 36

6. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM ················· 37

7. ELECTRICAL PARTS LIST ················ 38

For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the USE mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the USE mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to USE mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

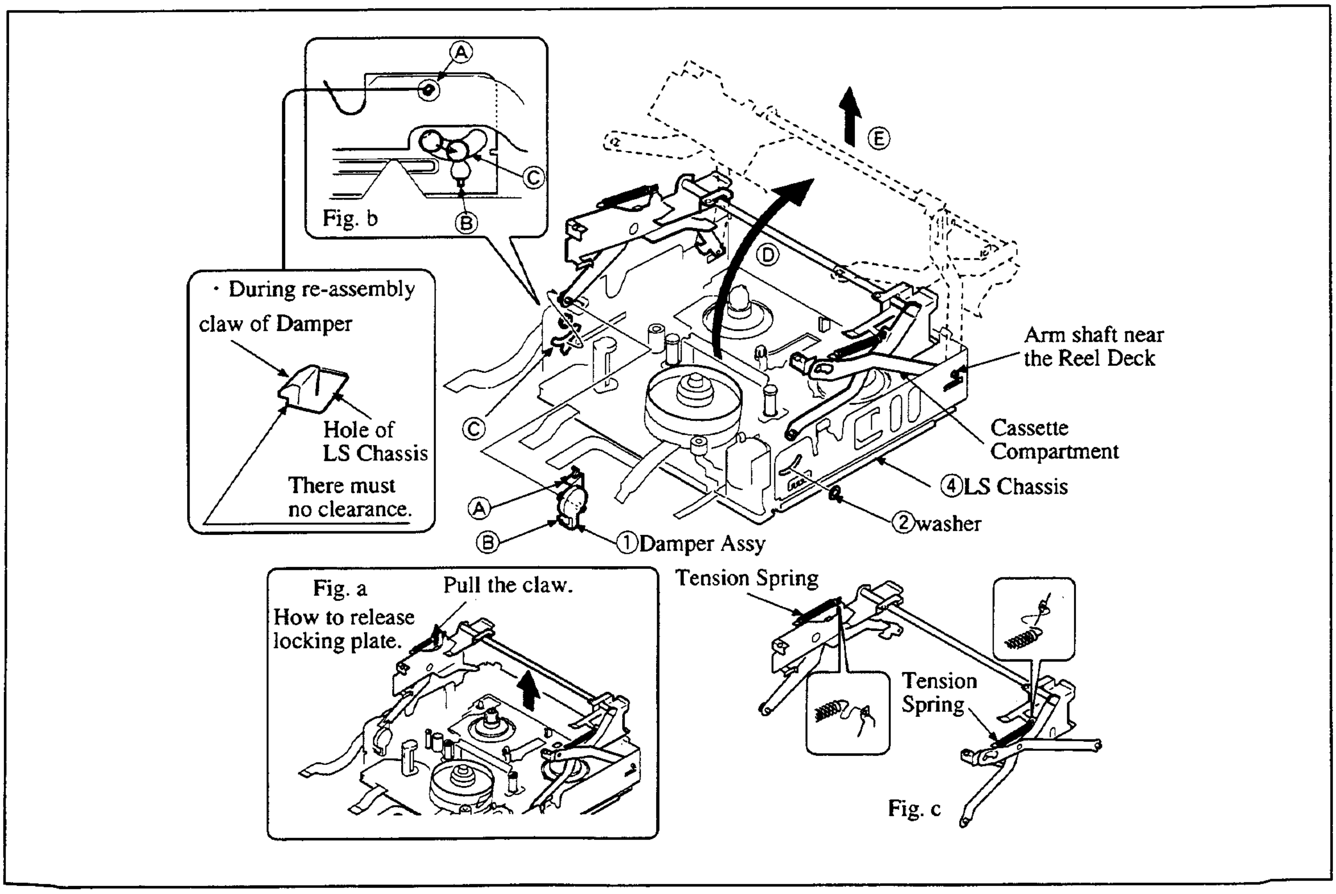

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

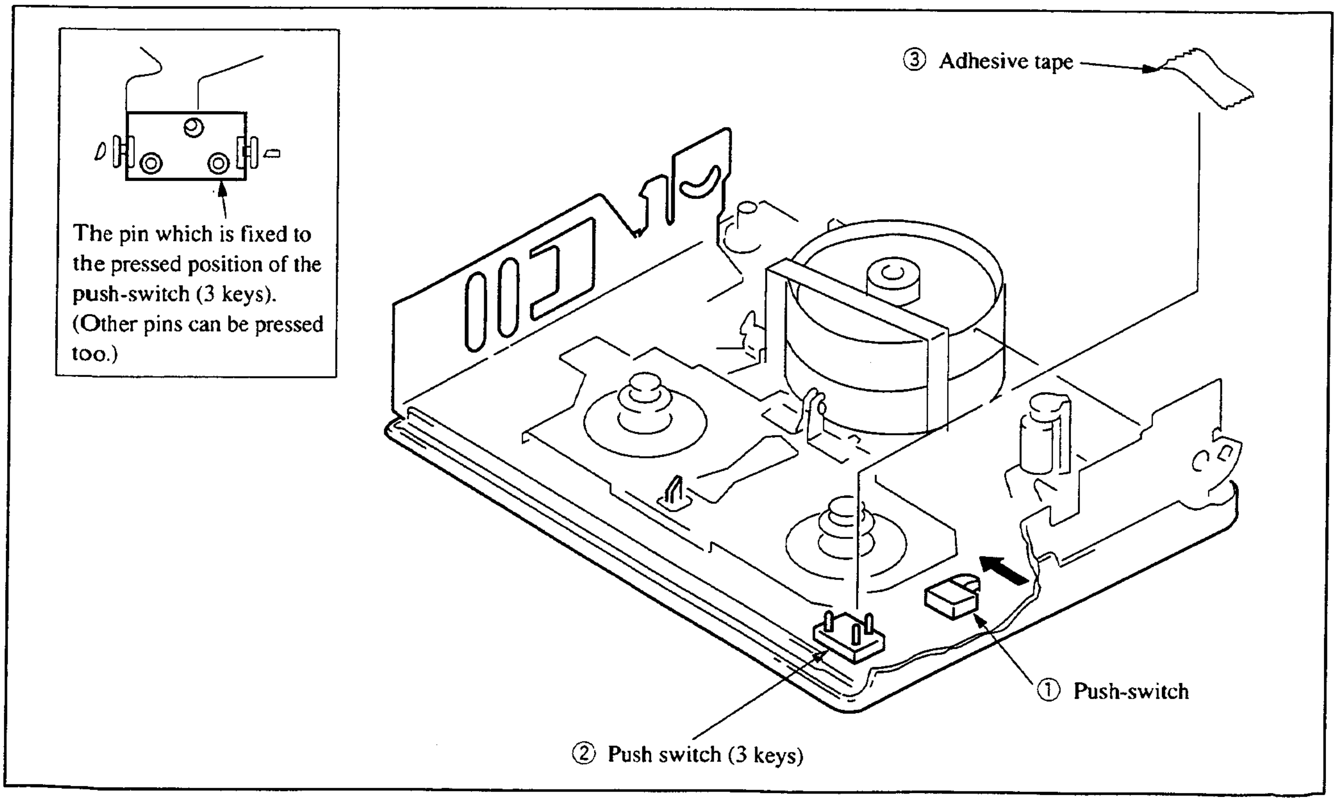

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

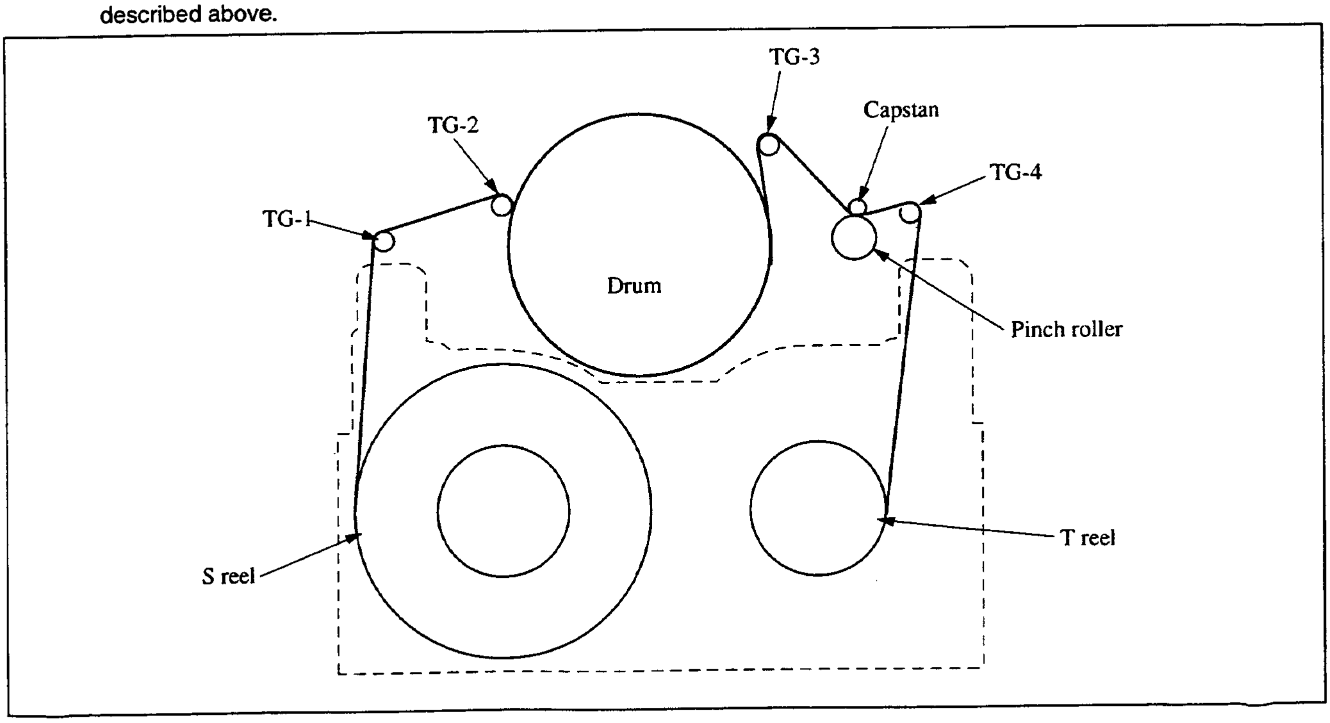


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

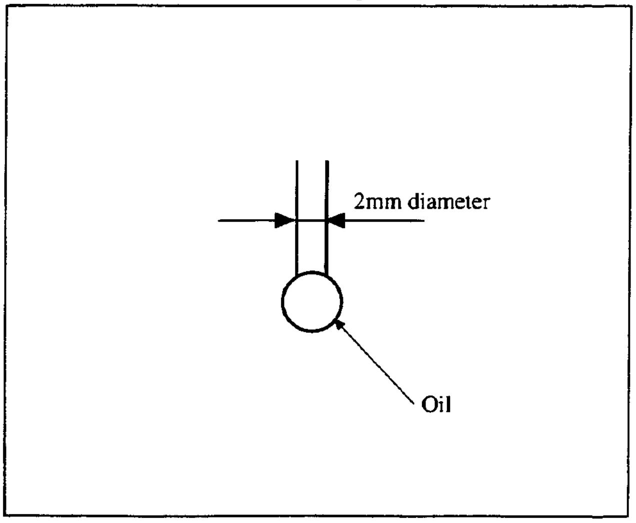


Fig. 4

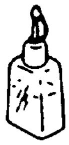
2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

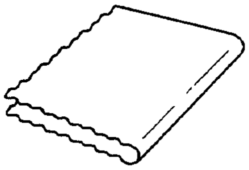
Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

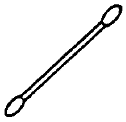
J-1



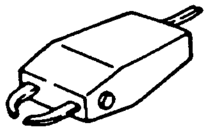
J-2



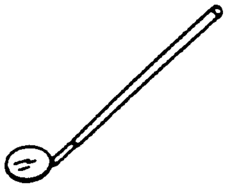
J-3



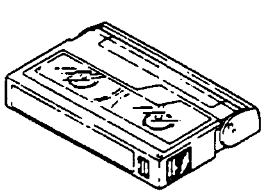
J-4



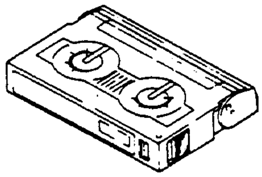
J-5



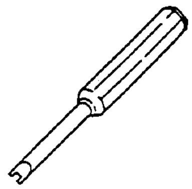
J-6



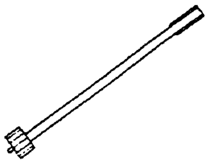
J-7



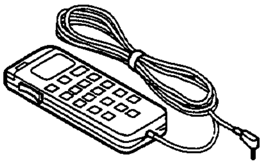
J-8



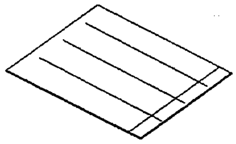
J-9



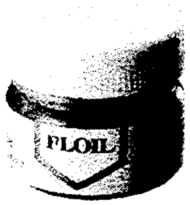
J-10



J-11



J-12



J-13

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

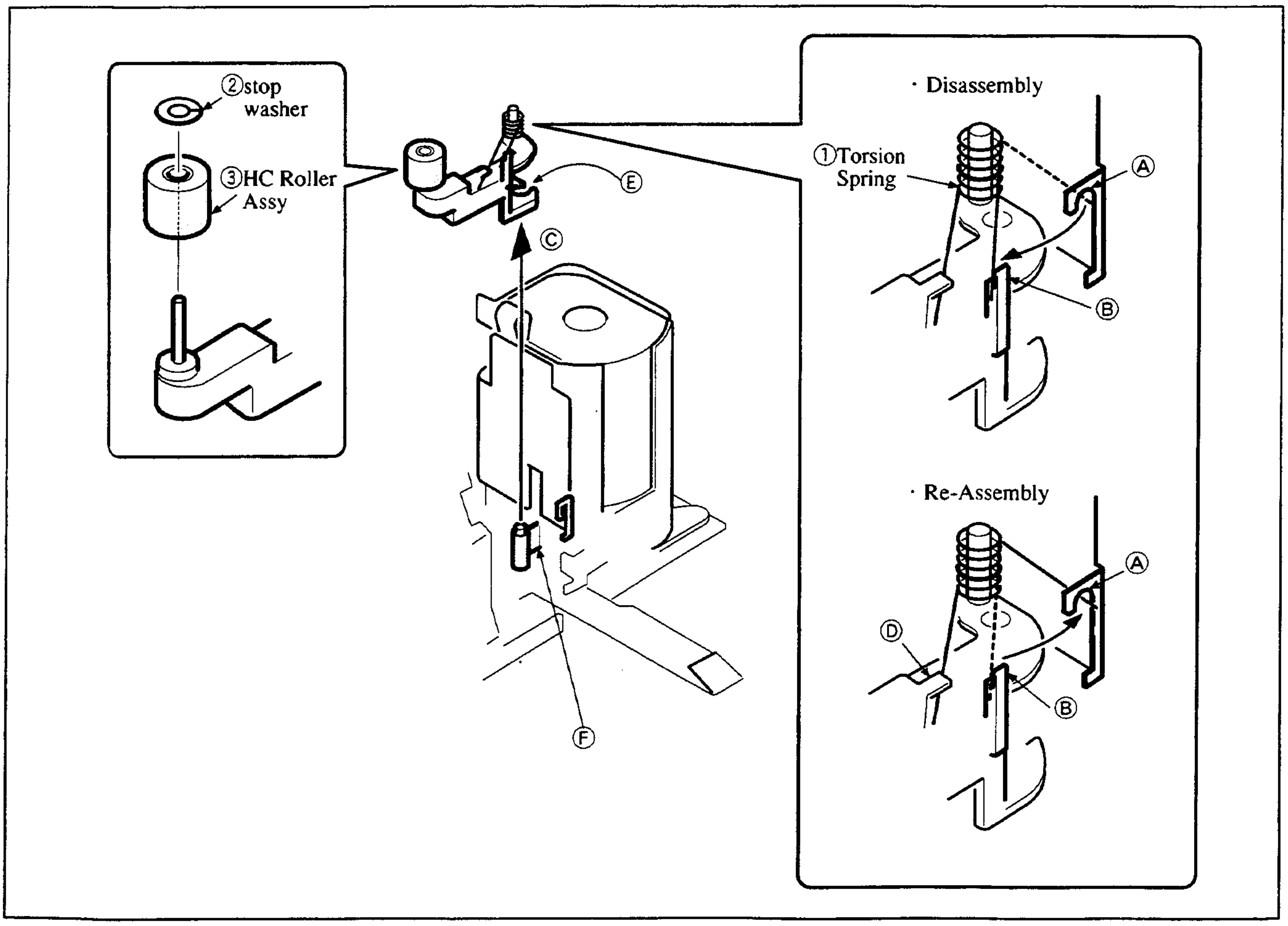

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

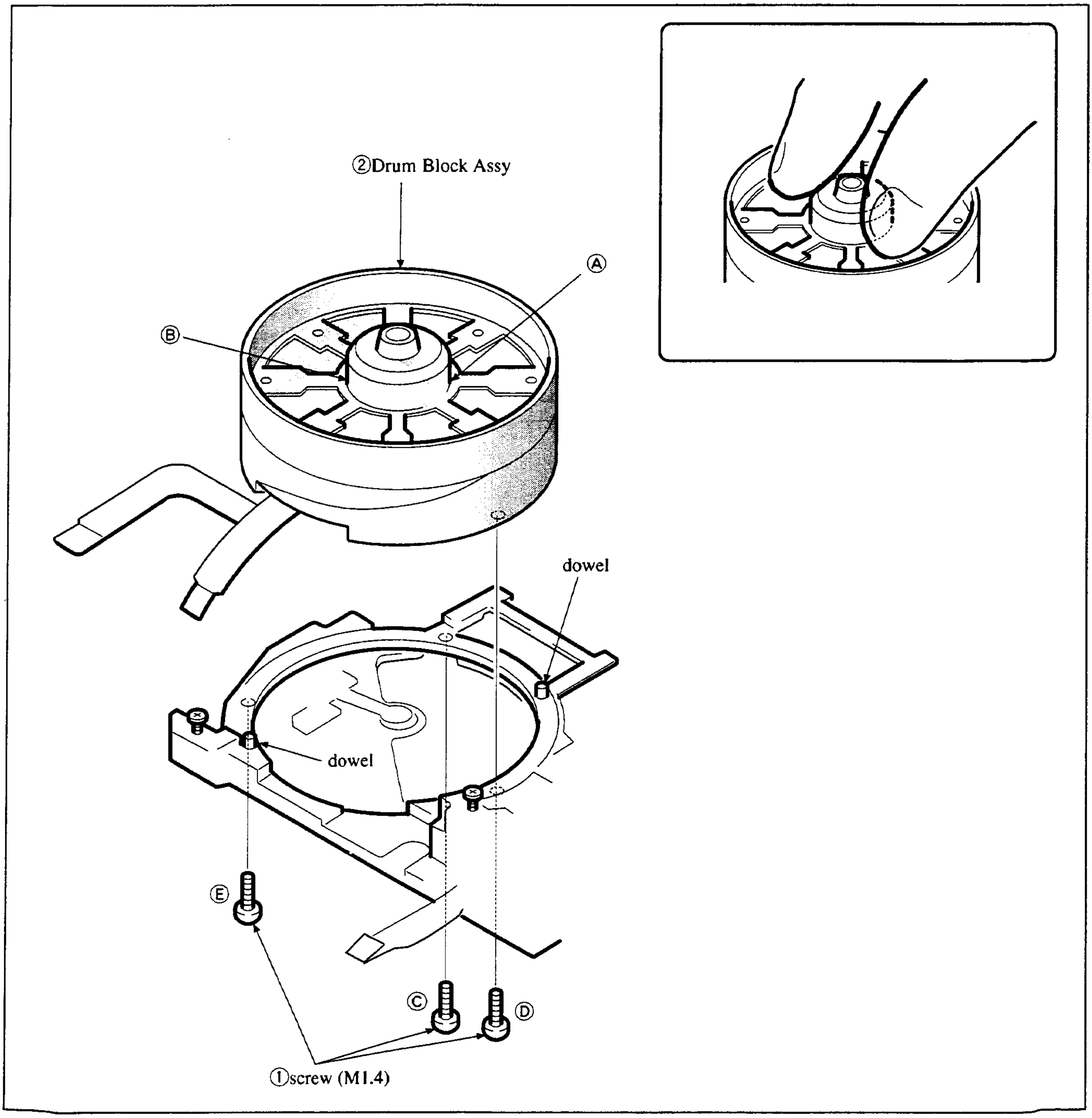


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

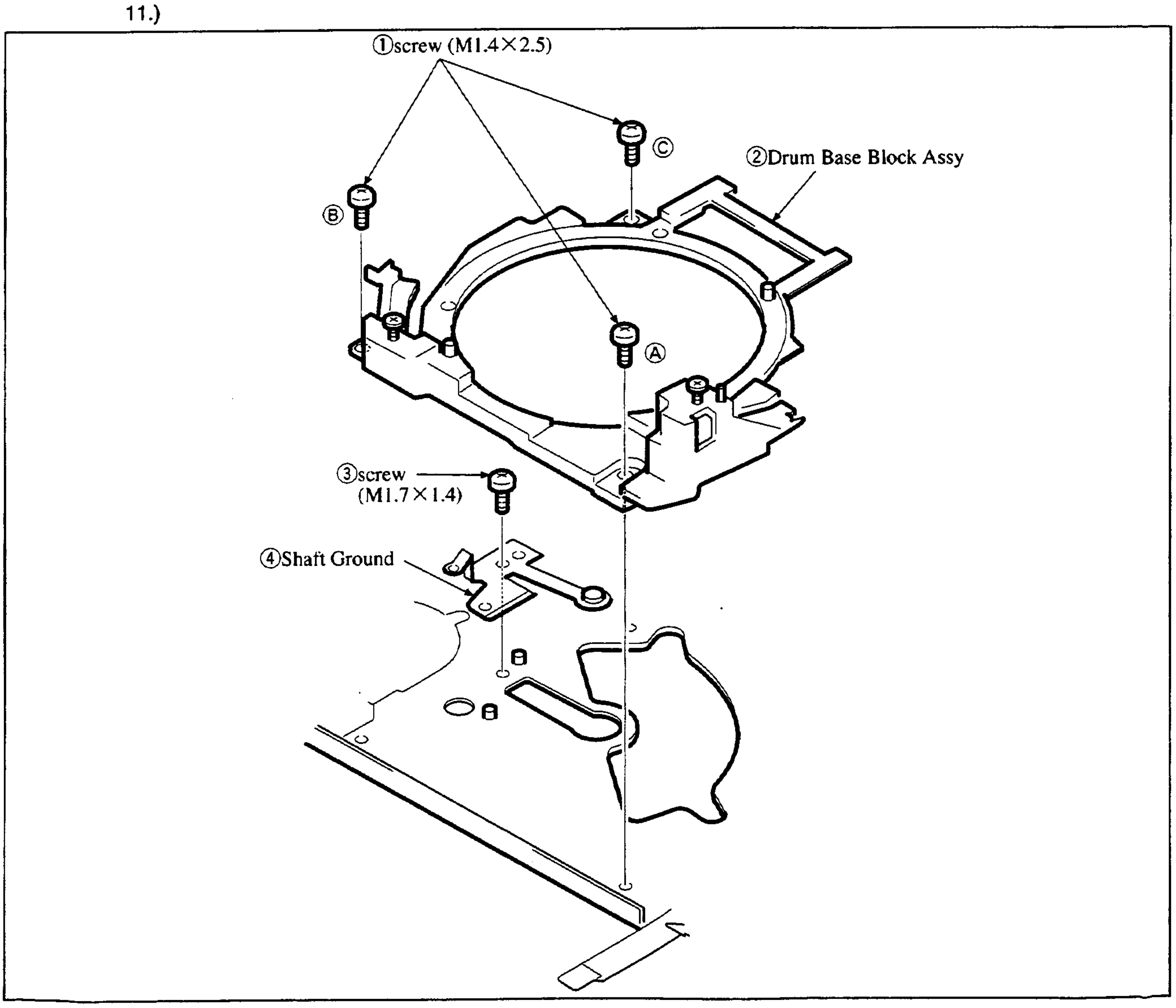


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

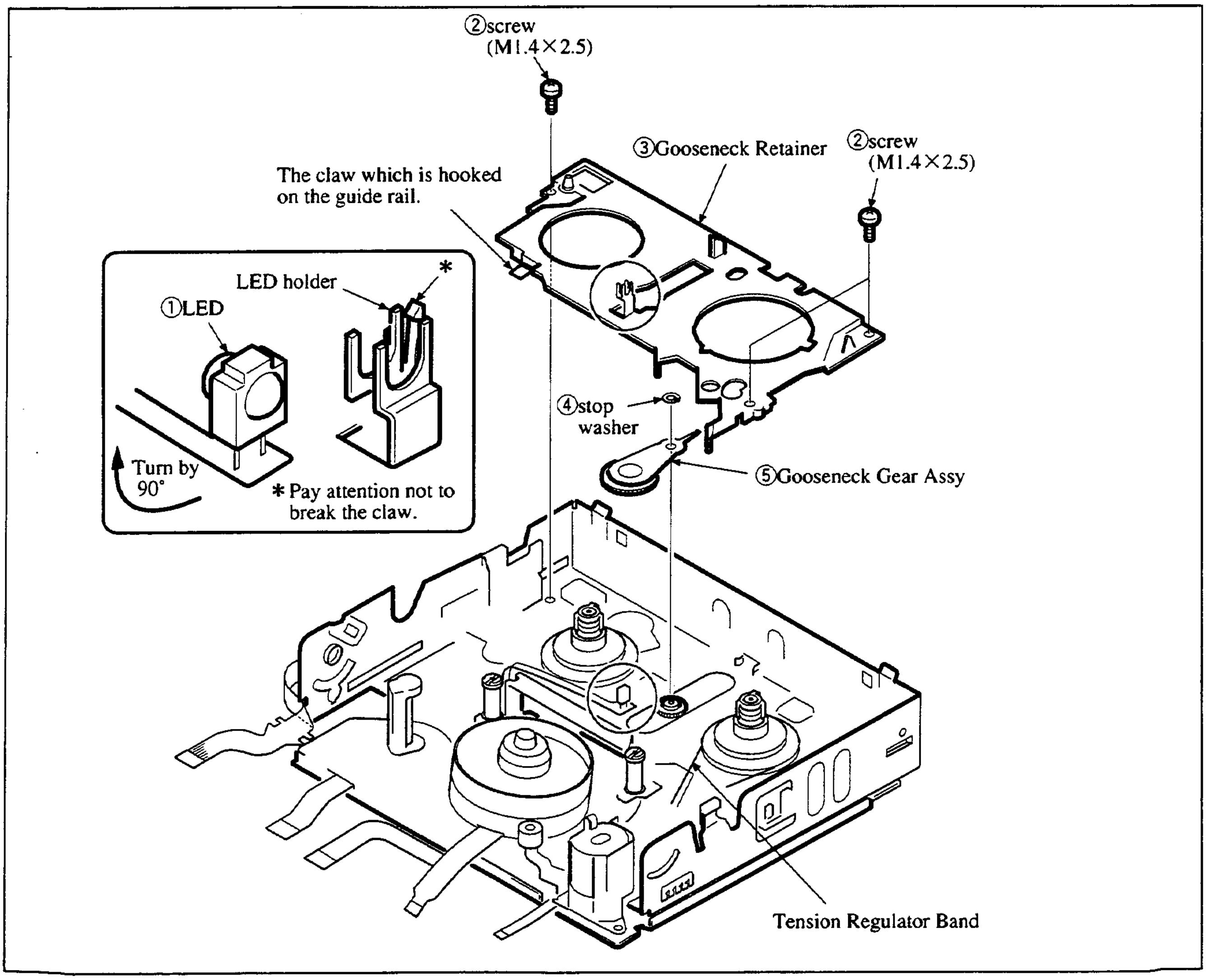

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

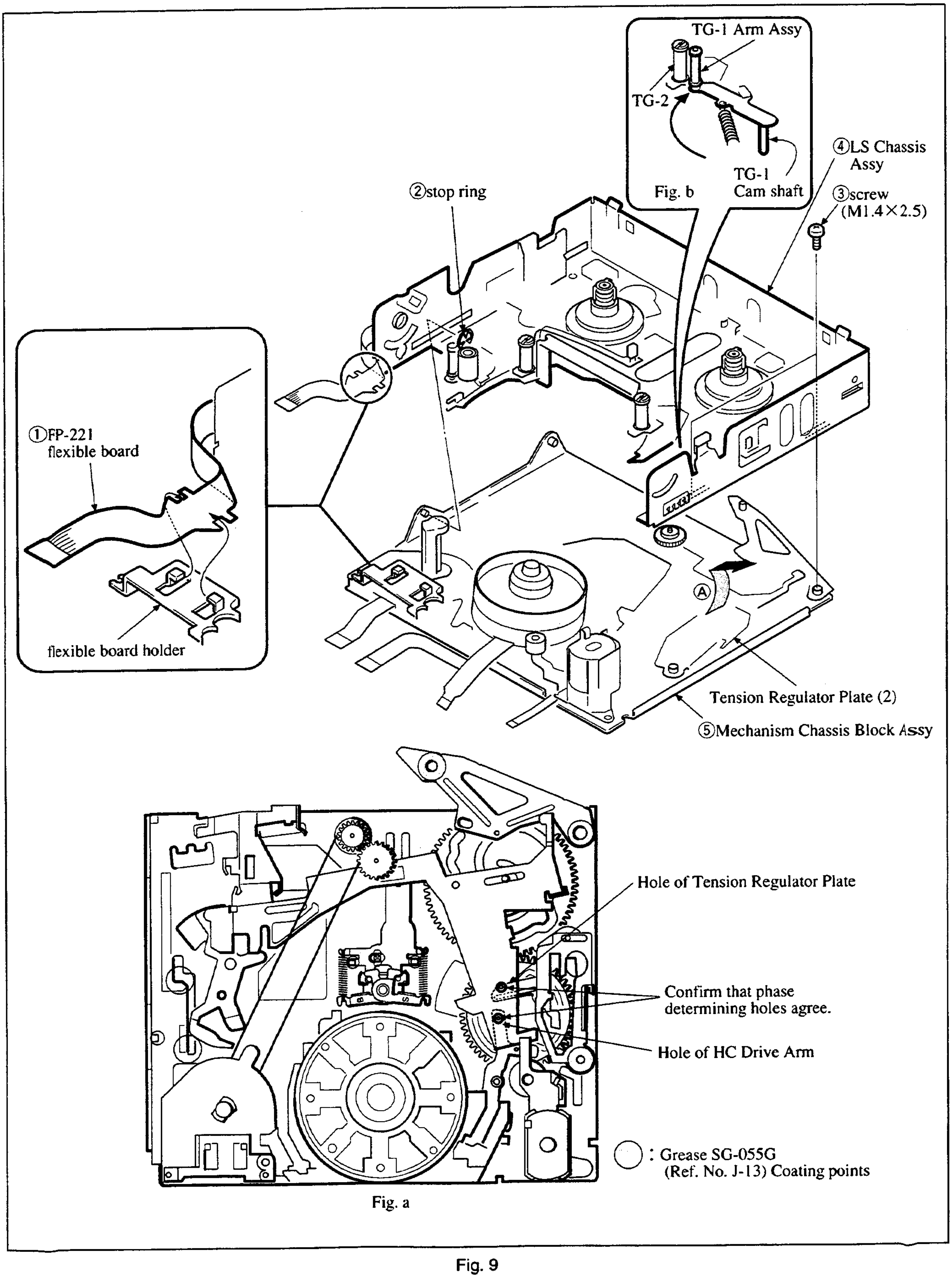

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
④LS Chassis
Assy
③screw
(M1.4×2.5)
②stop ring
①FP-221
flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase
determining holes agree.
Hole of HC Drive Arm
○ : Grease SG-055G
(Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

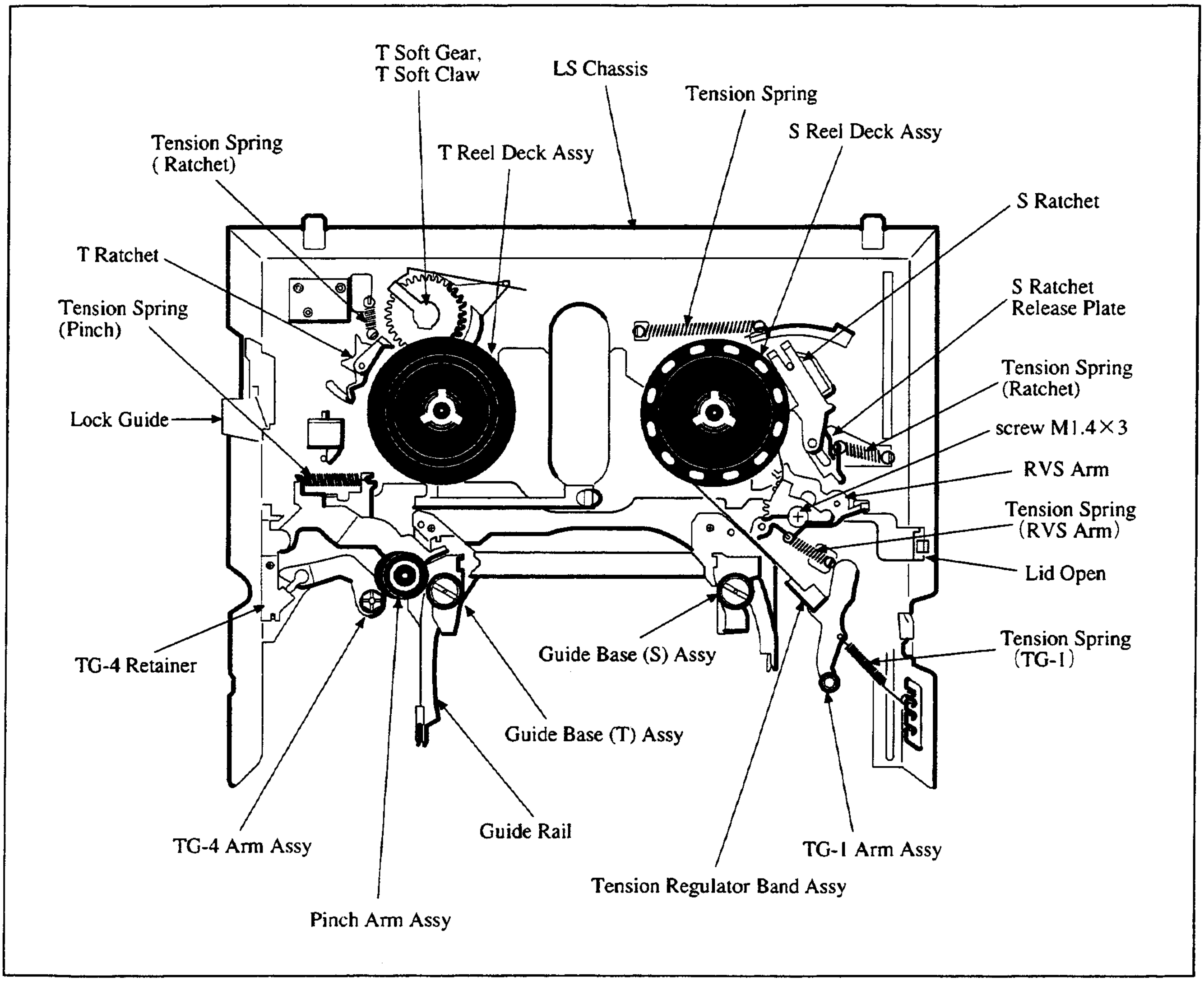

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

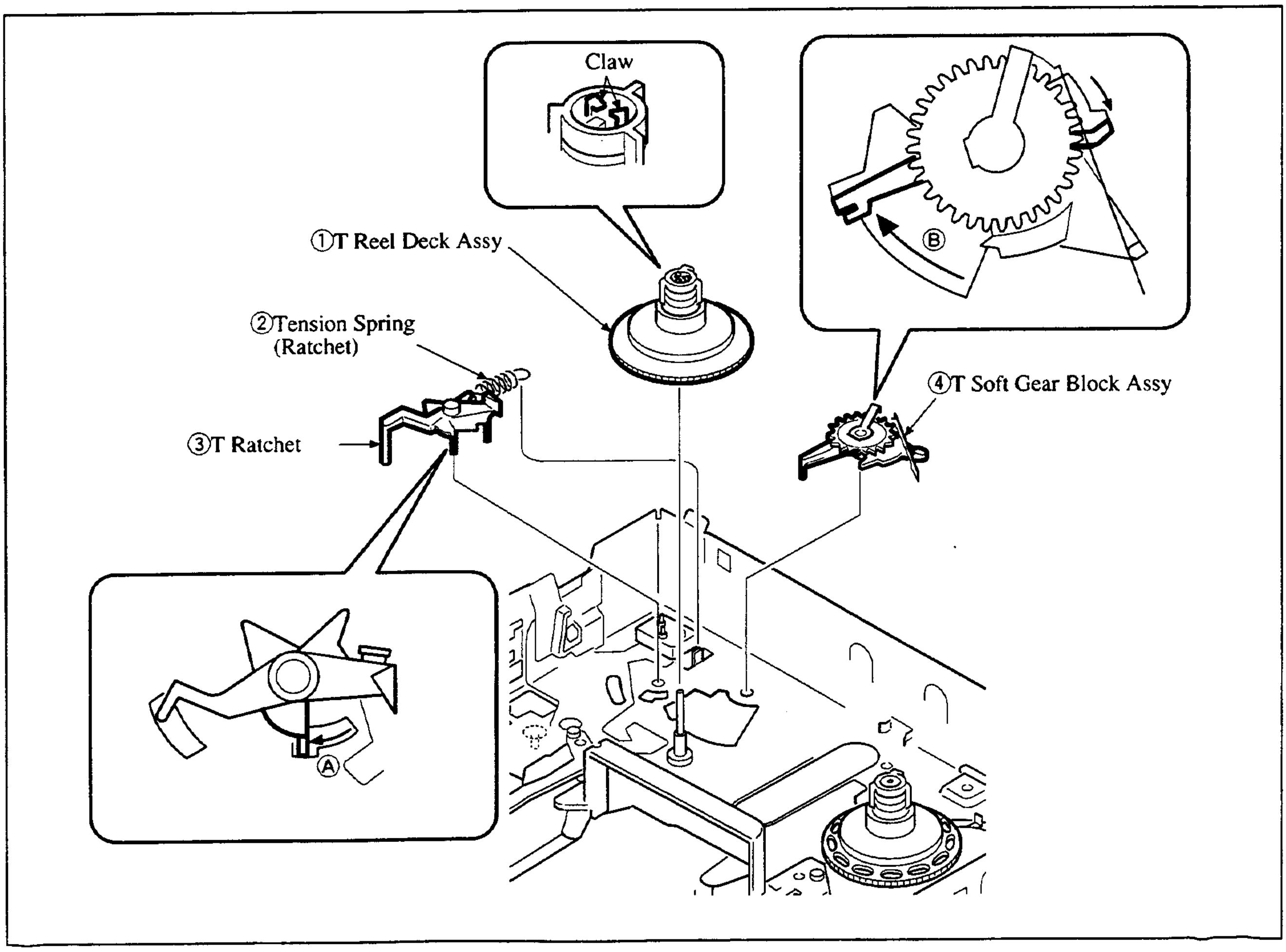


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

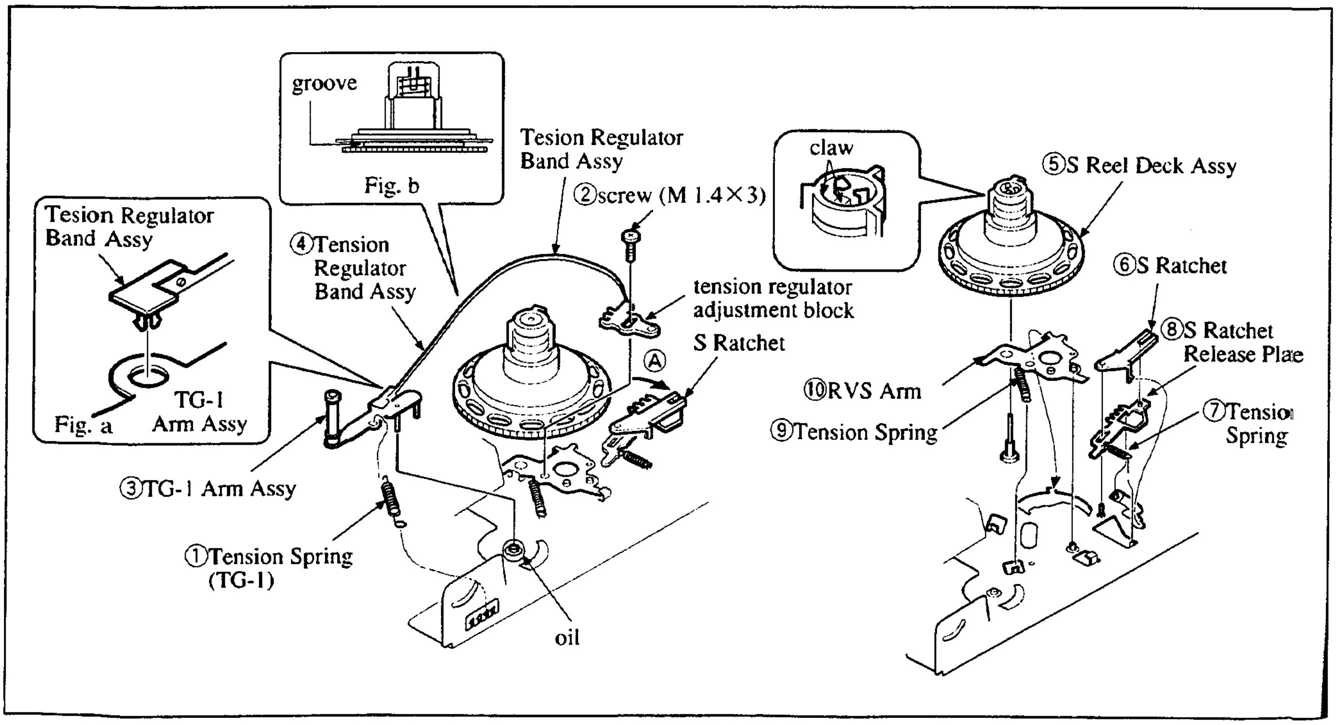

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
Fig. a
TG-1 Arm Assy
④Tension Regulator Band Assy
tension regulator adjustment block
S Ratchet
Ⓐ
⑥S Ratchet
⑧S Ratchet Release Plae
⑩RVS Arm
⑨Tension Spring
⑦Tensio Spring
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

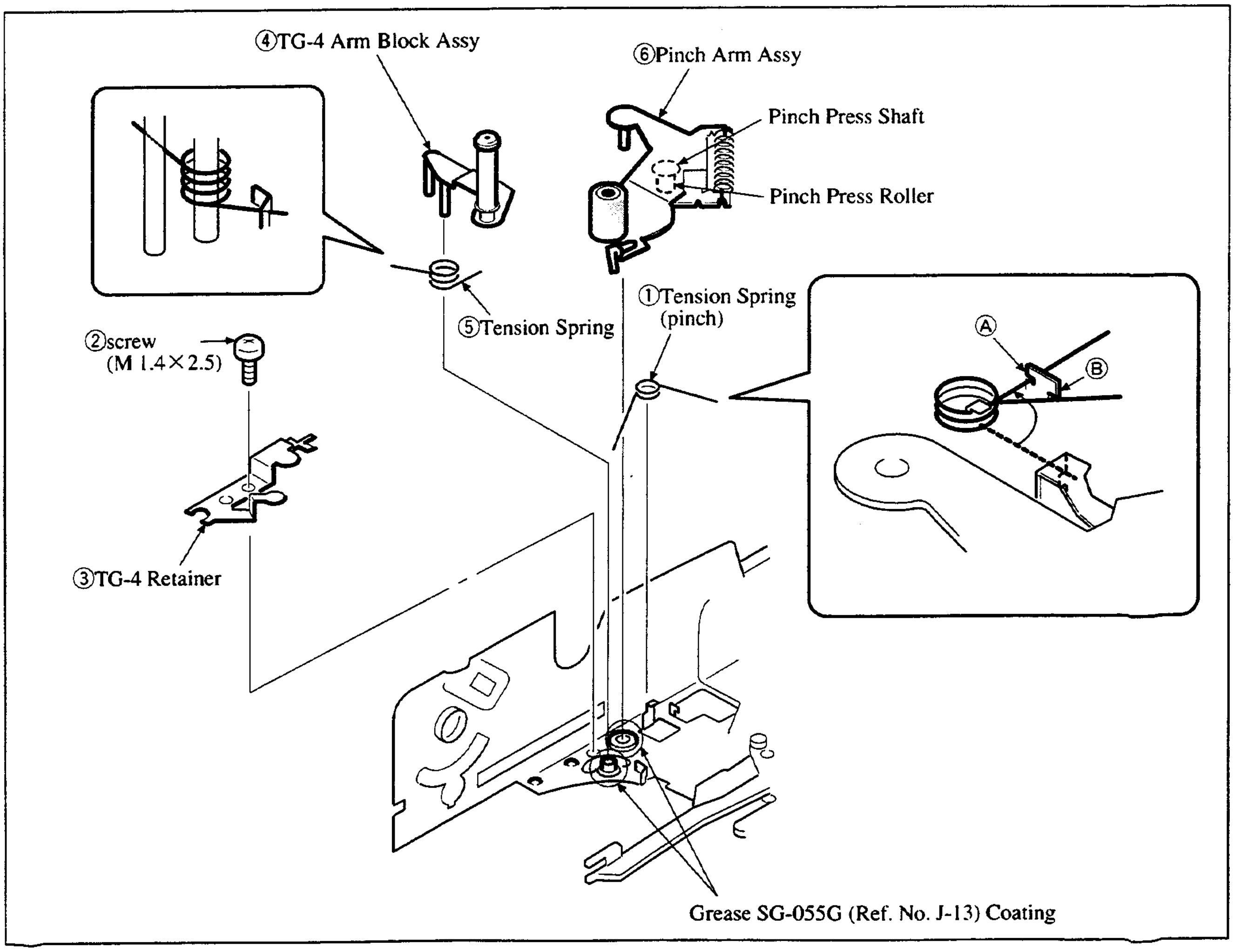

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
①Tension Spring (pinch)
⑤Tension Spring
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide
(Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

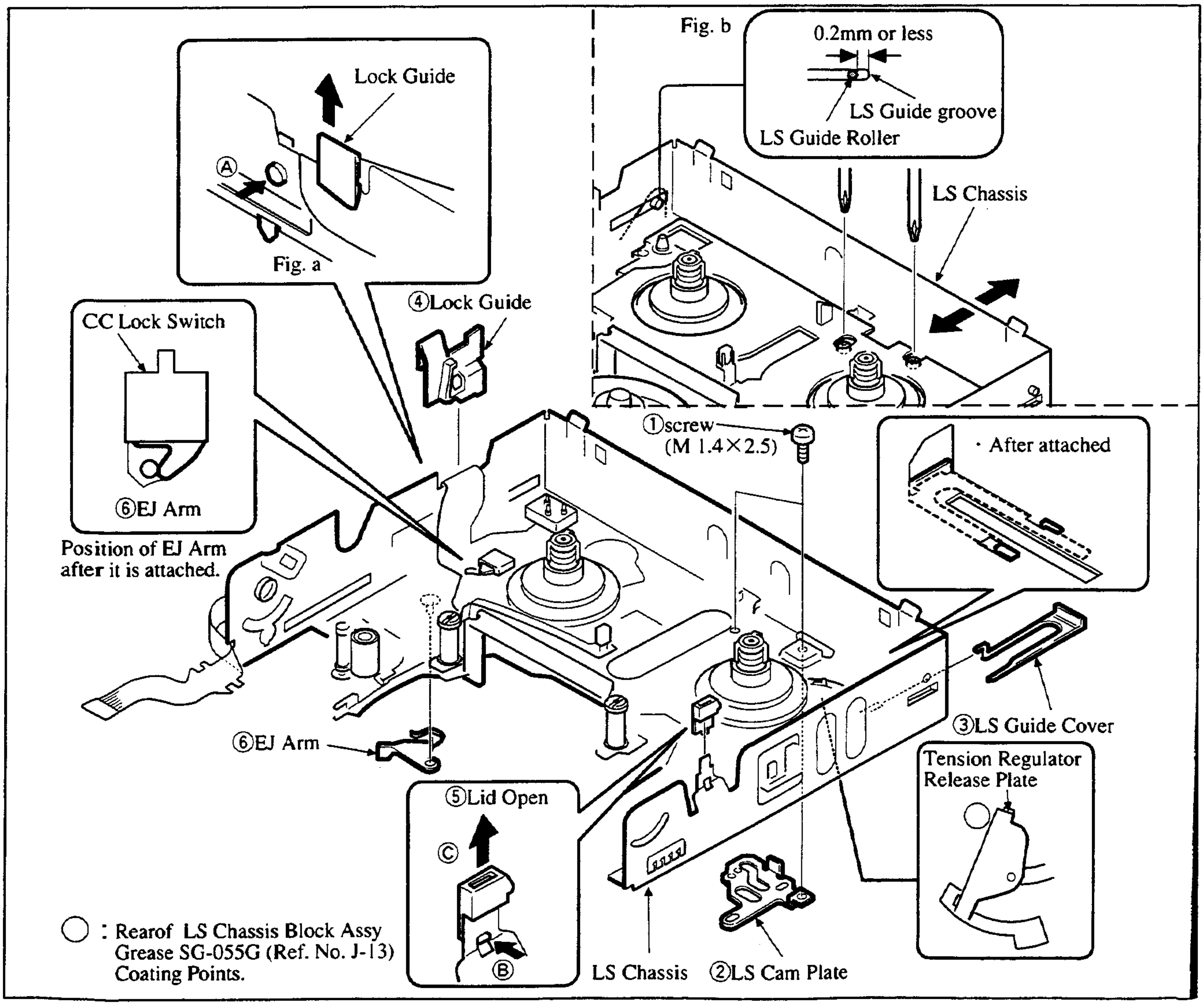


Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
①screw (M 1.4×2.5)
・After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.
LS Chassis
②LS Cam Plate

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

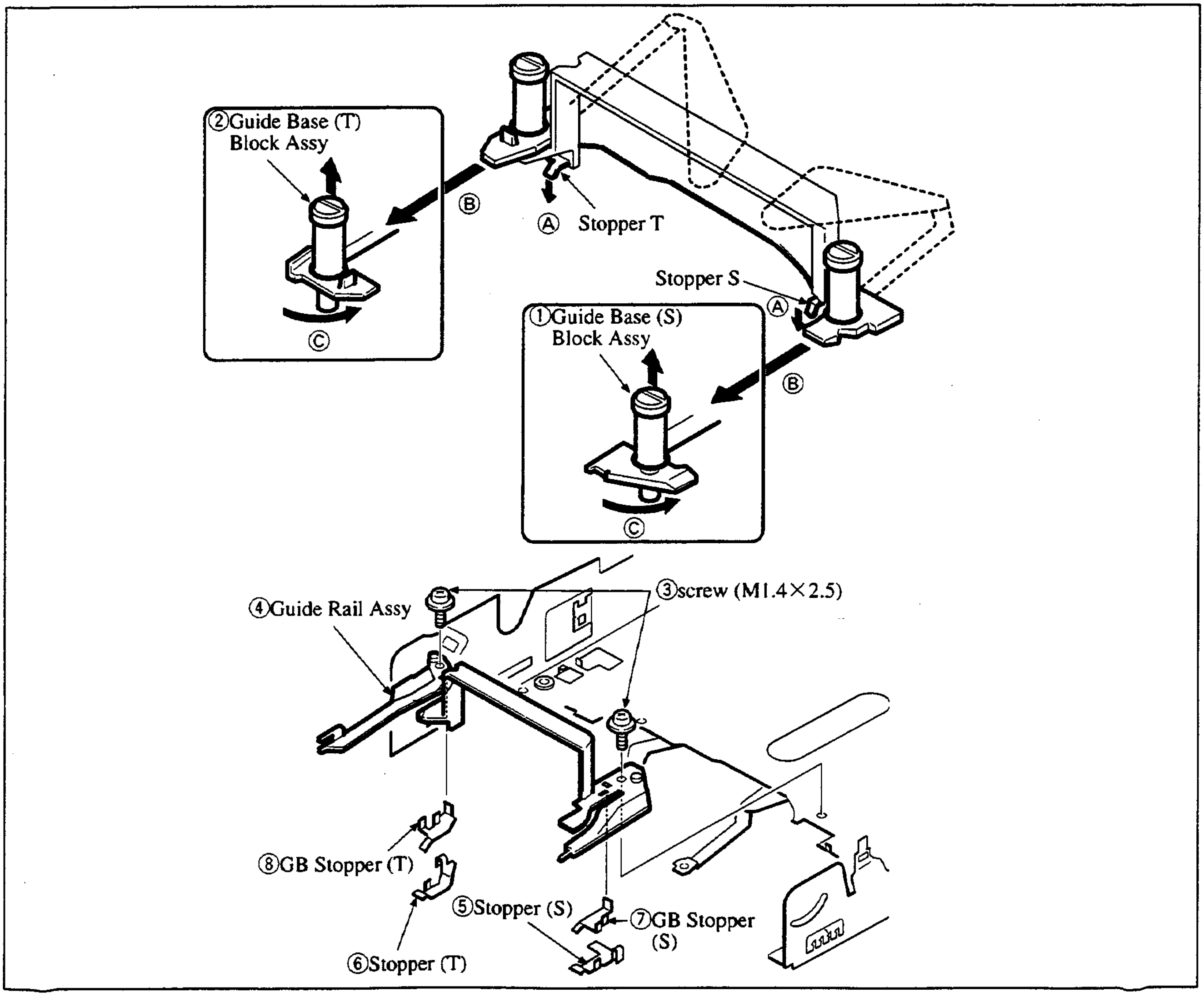

②Guide Base (T)
Block Assy
Ⓑ
Ⓒ
Ⓐ Stopper T
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

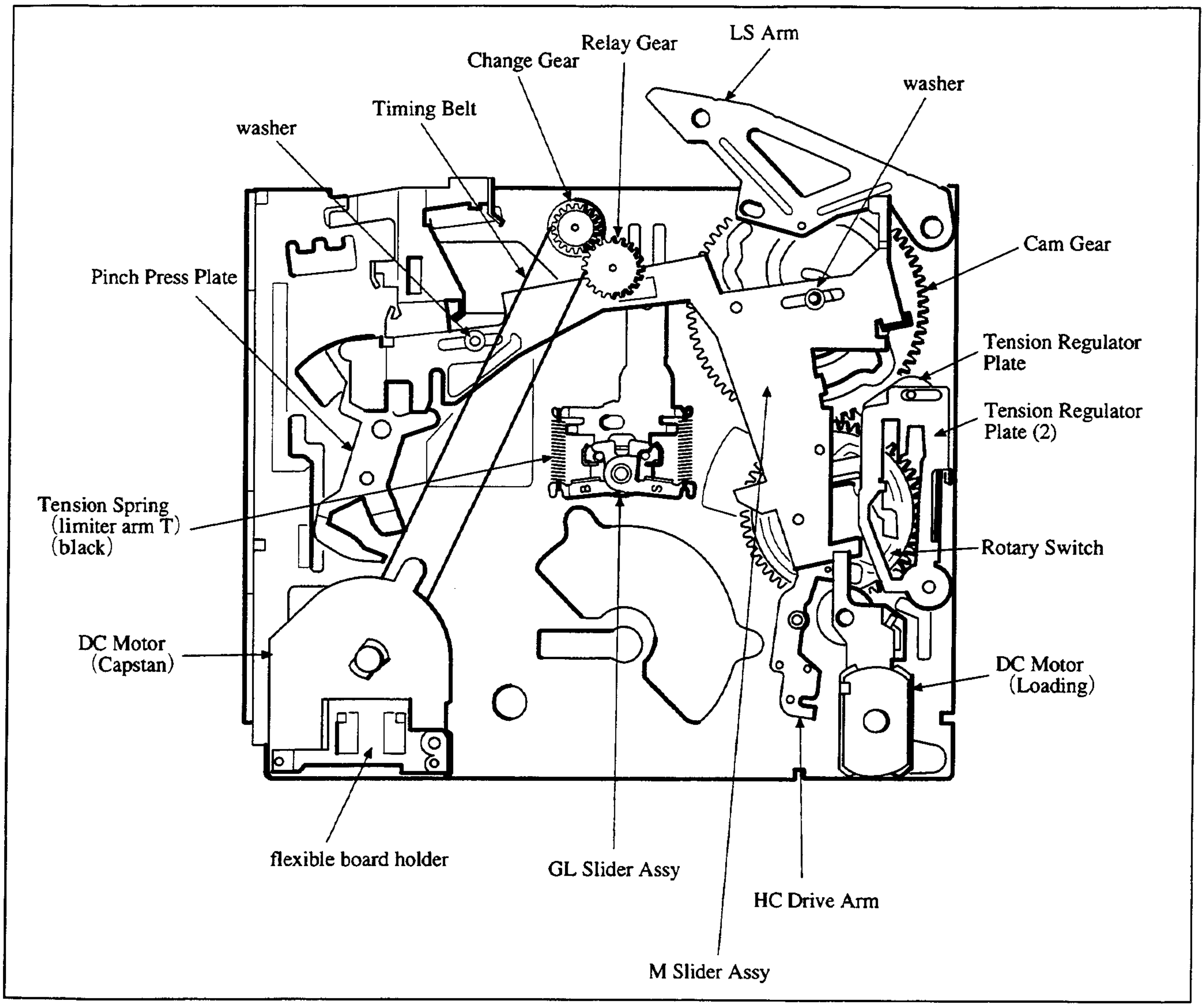

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

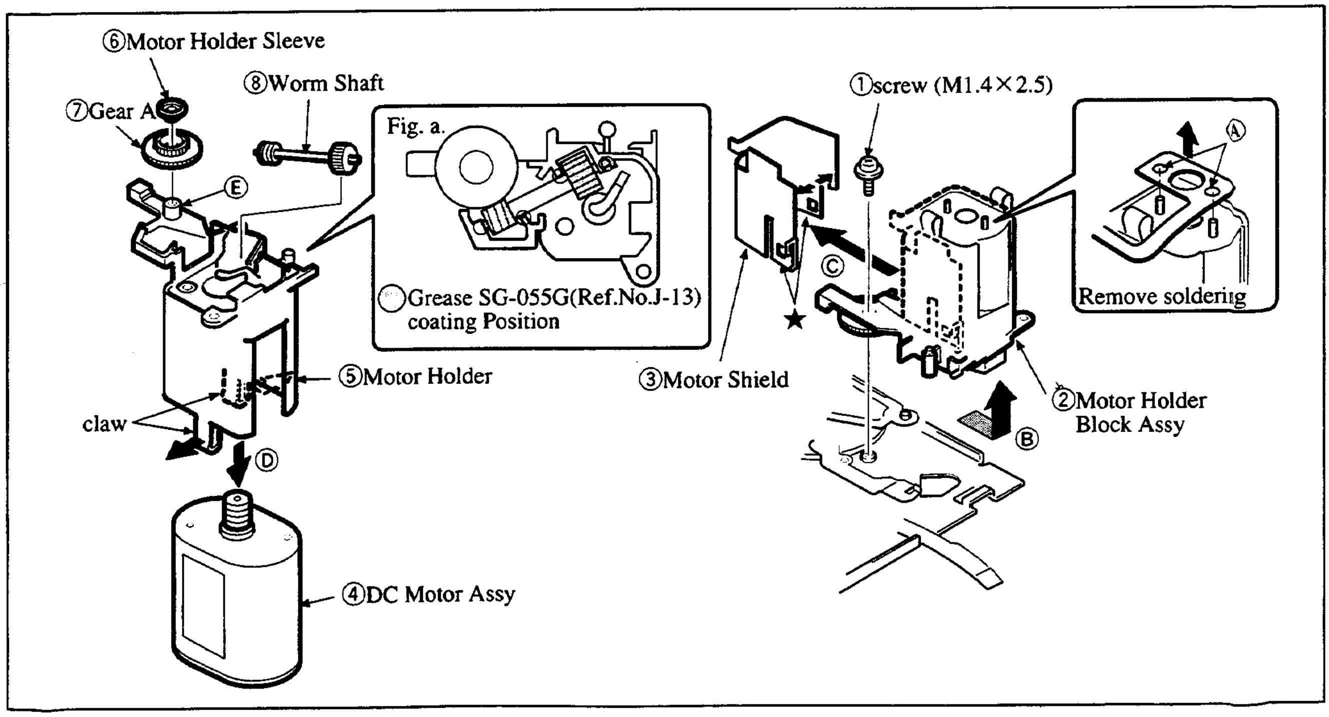

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
○Grease SG-055G(Ref.No.J-13) coating Position
⑤Motor Holder
claw
Ⓓ
④DC Motor Assy
③Motor Shield
①screw (M1.4×2.5)
Ⓒ
★
Ⓐ
Remove soldering
②Motor Holder Block Assy
Ⓑ

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

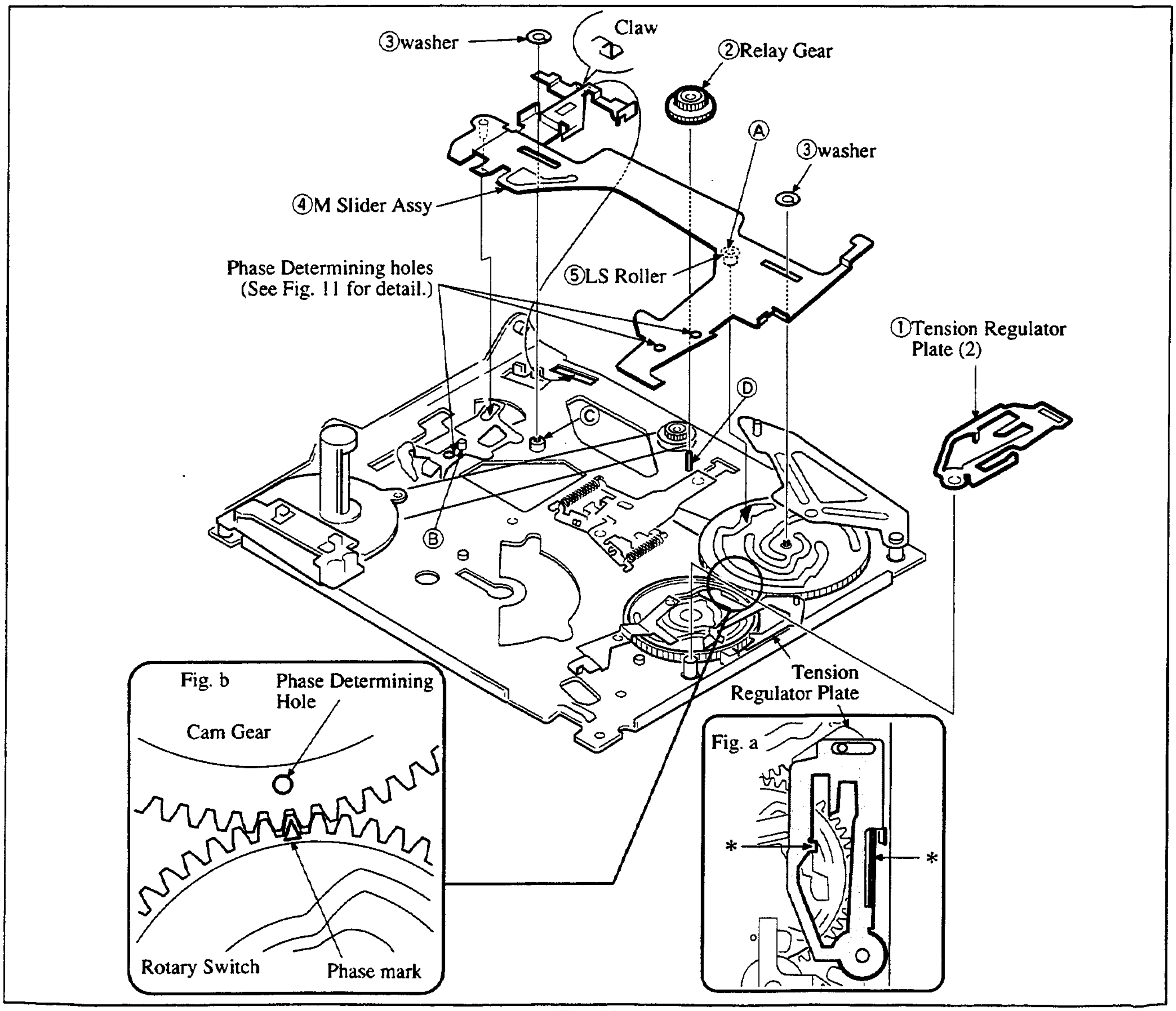

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator
Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension
Regulator Plate
Fig. a
*
*
Fig. b
Phase Determining
Hole
Cam Gear
Rotary Switch
Phase mark

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

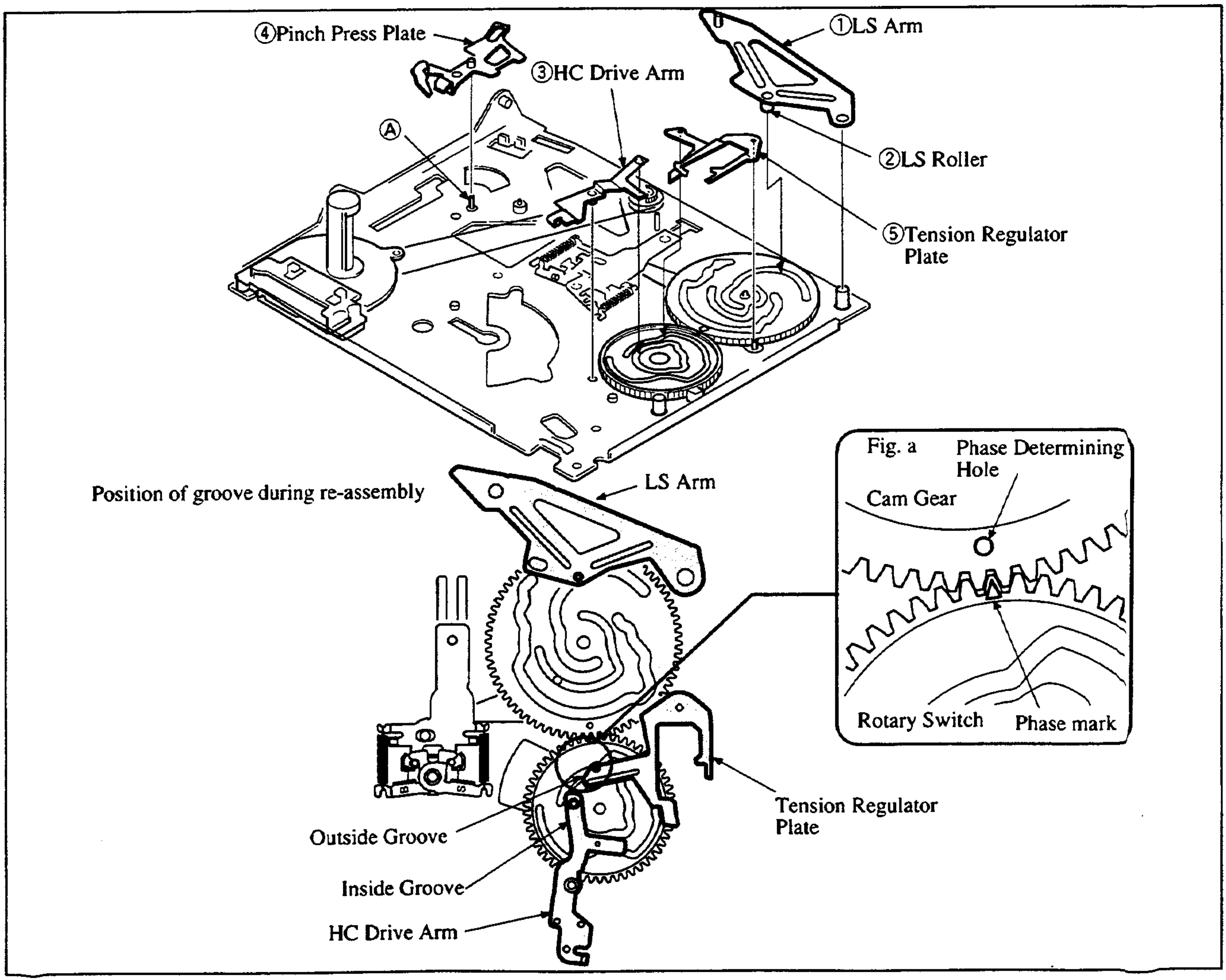

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

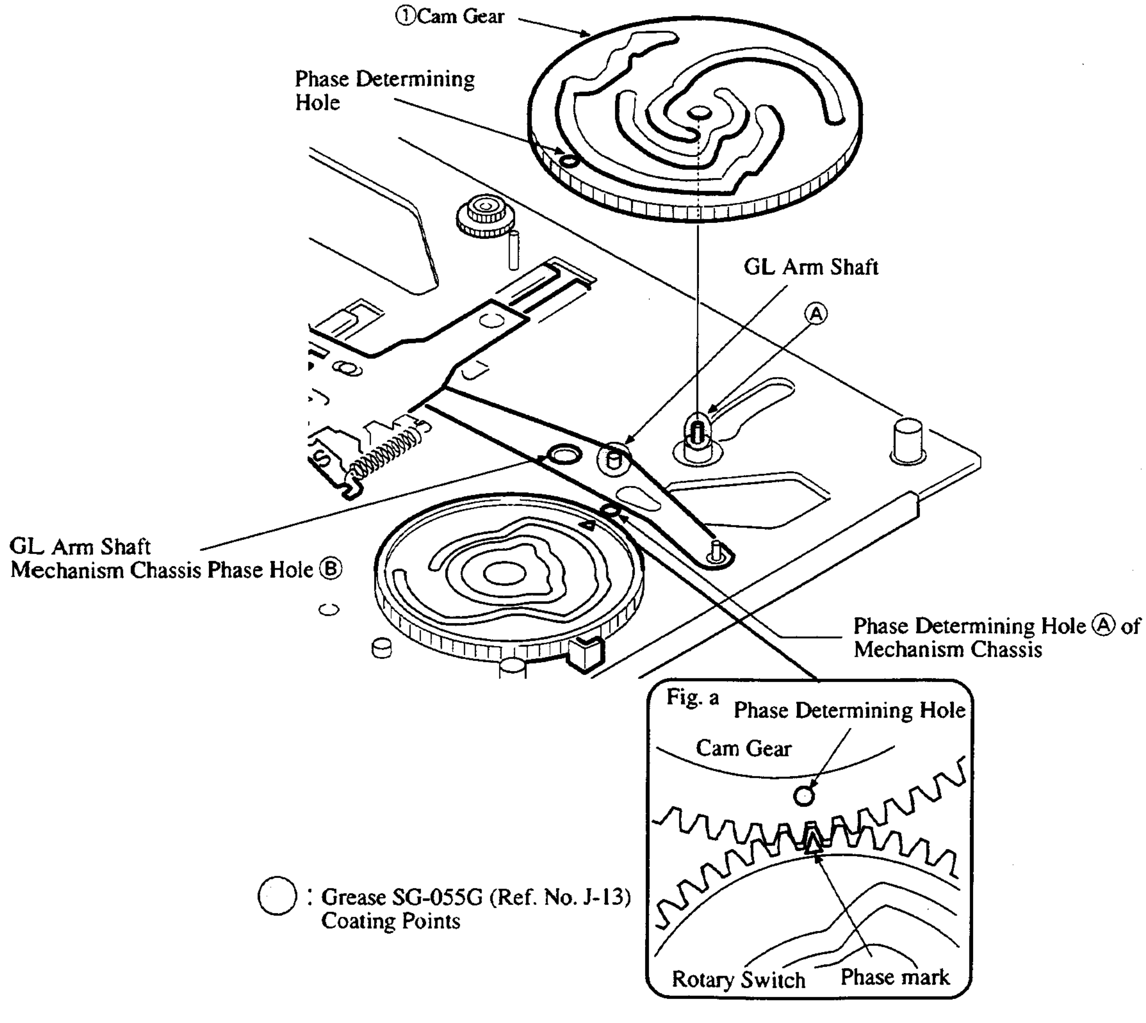

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

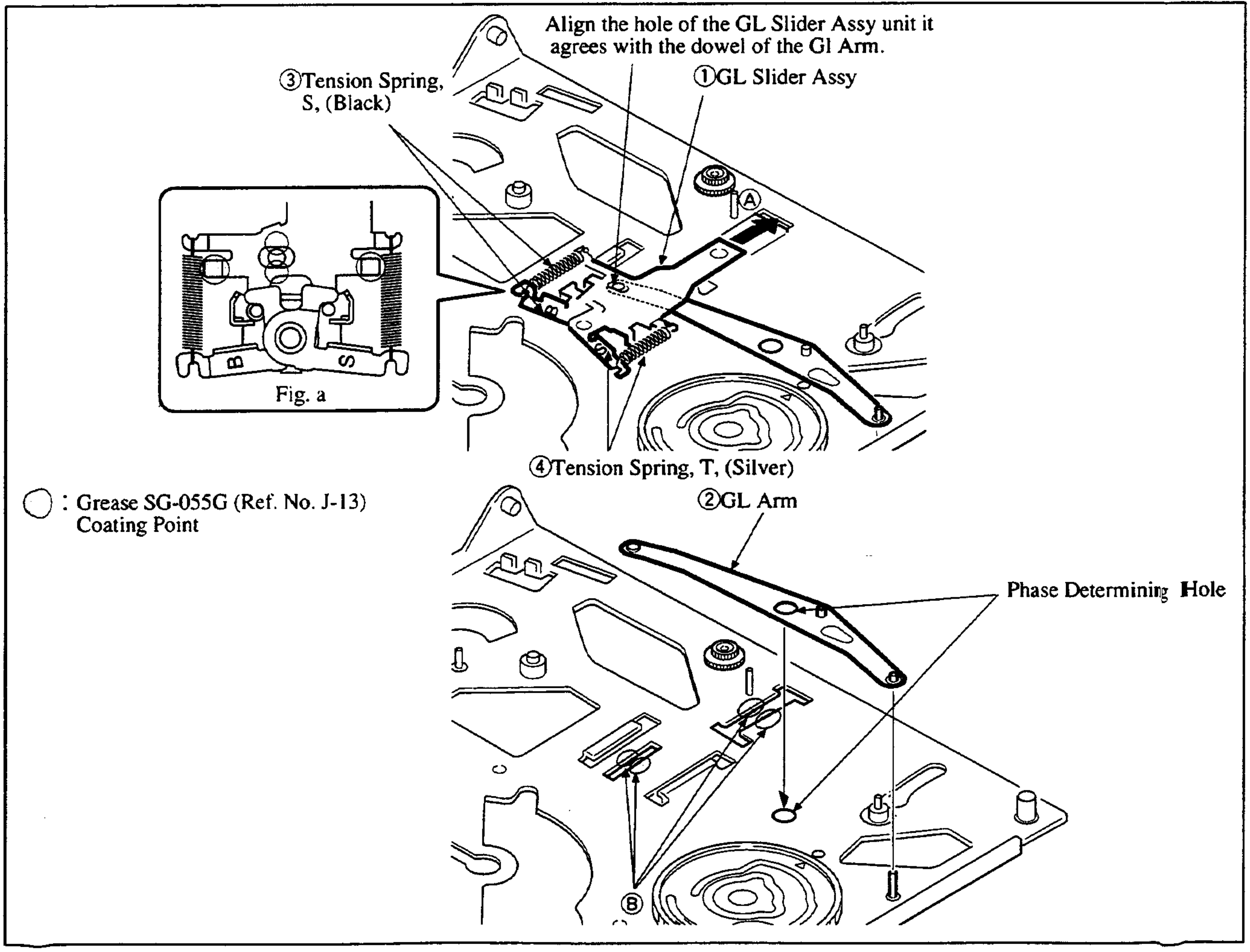

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
Fig. a
B
S
④Tension Spring, T, (Silver)
○ : Grease SG-055G (Ref. No. J-13) Coating Point
②GL Arm
Phase Determining Hole
Ⓑ

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

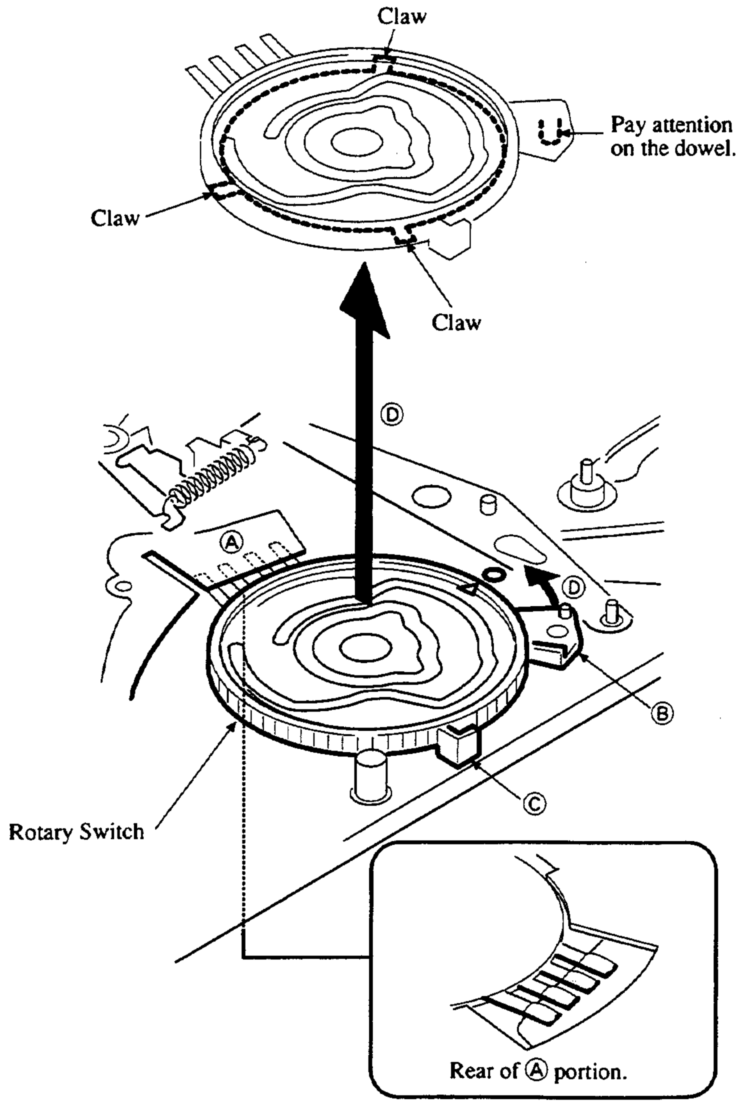


Fig. 22

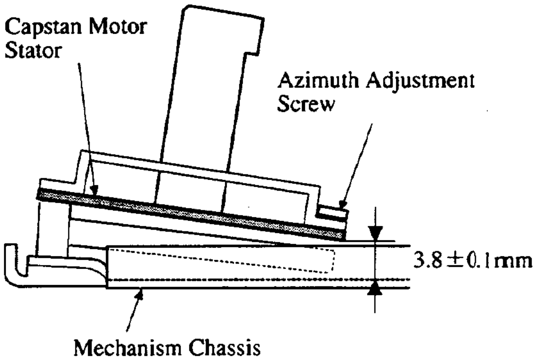
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

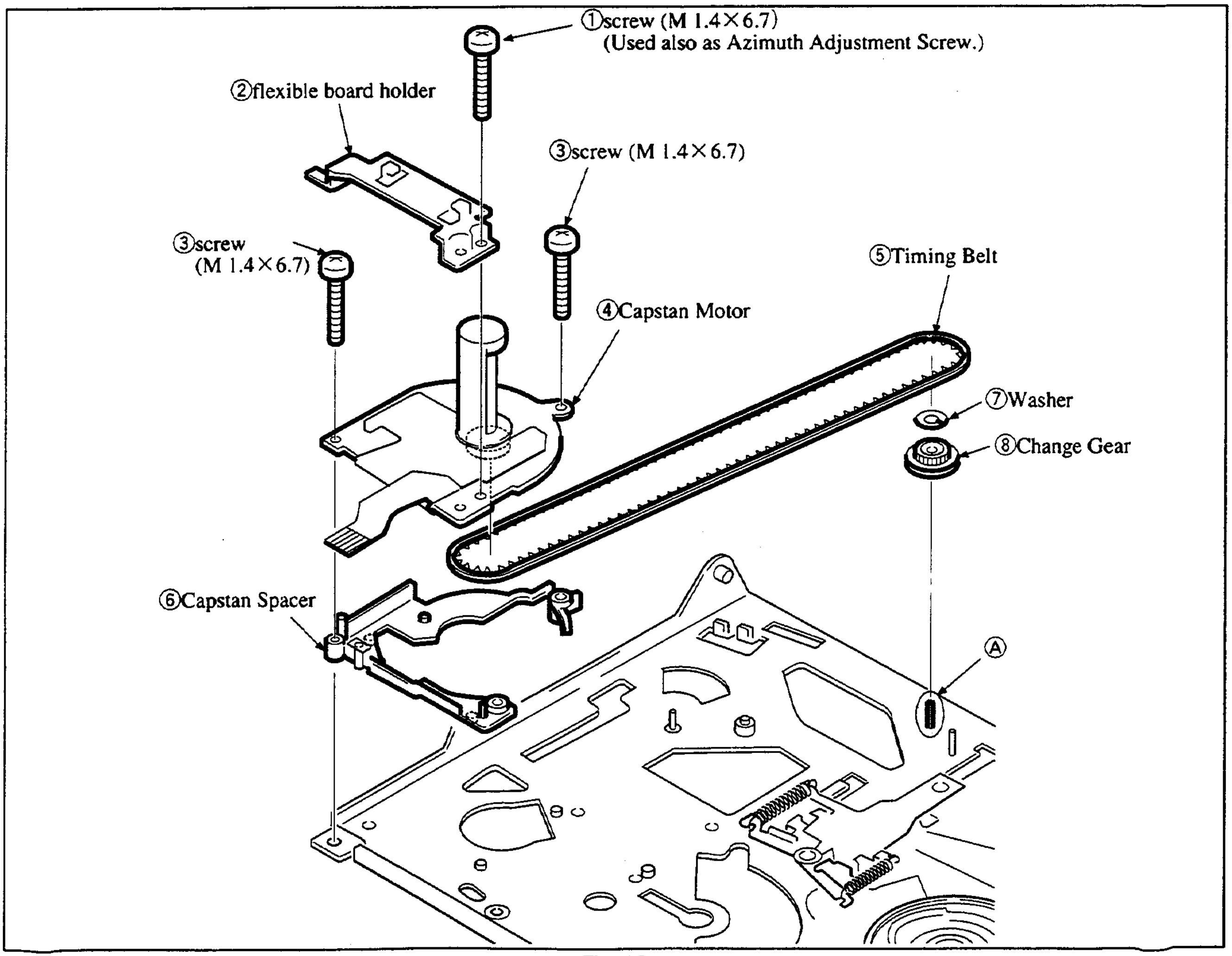

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

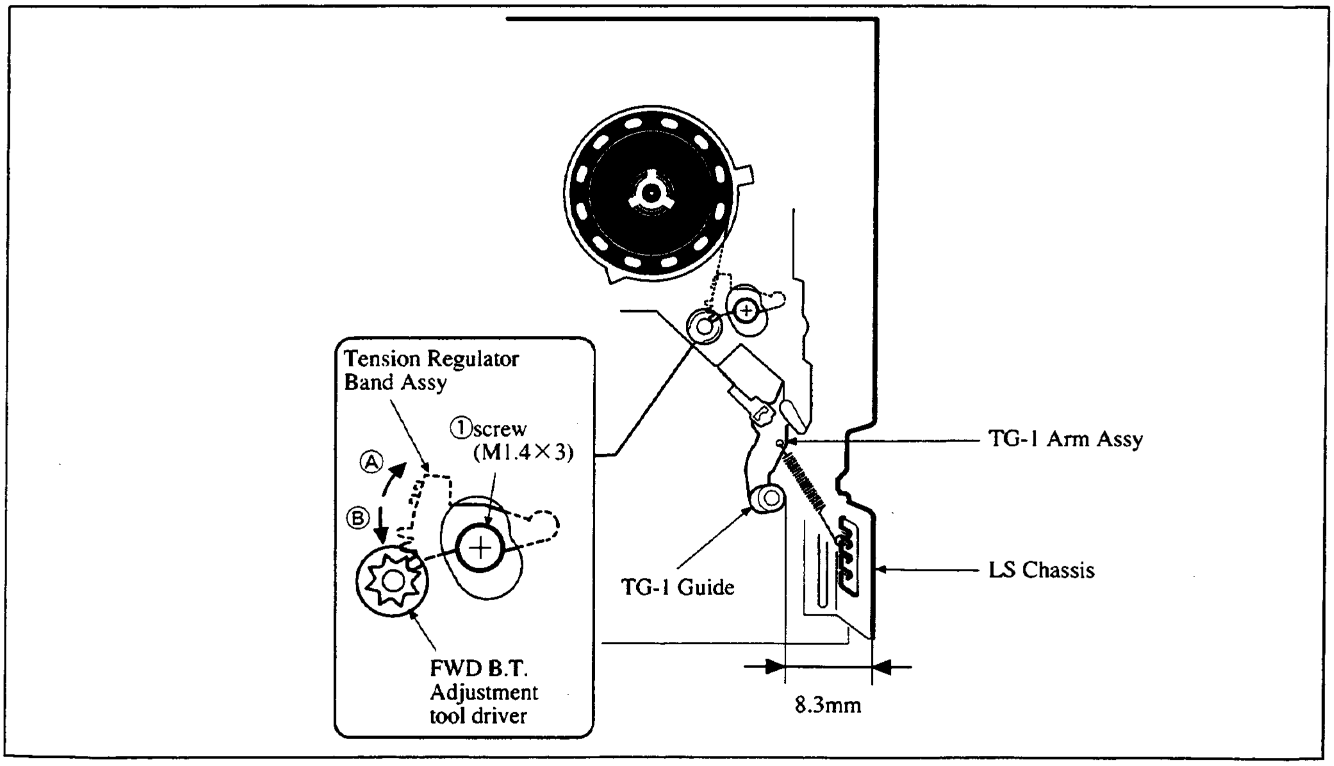

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

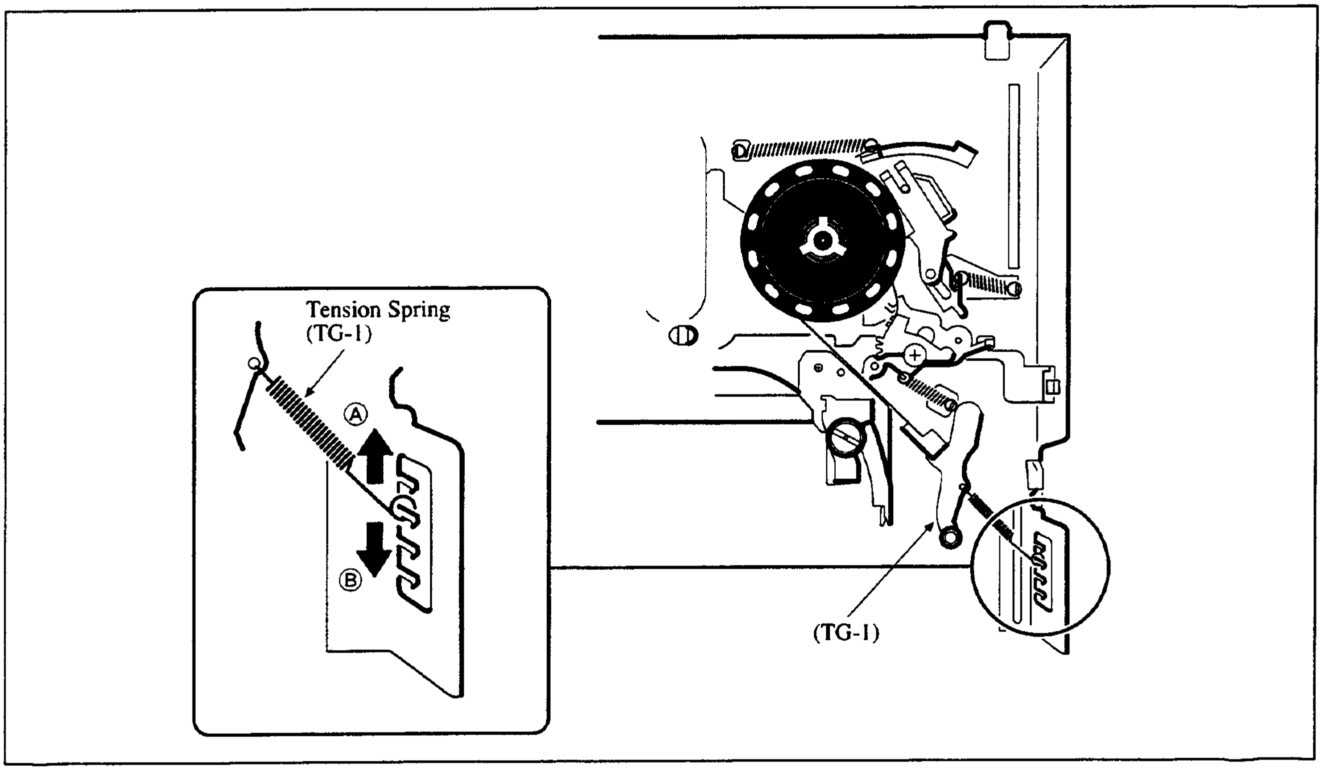


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

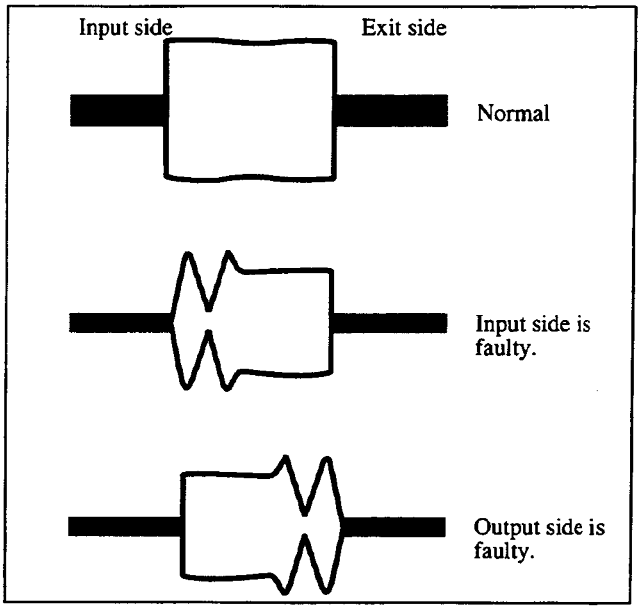


Fig. 26

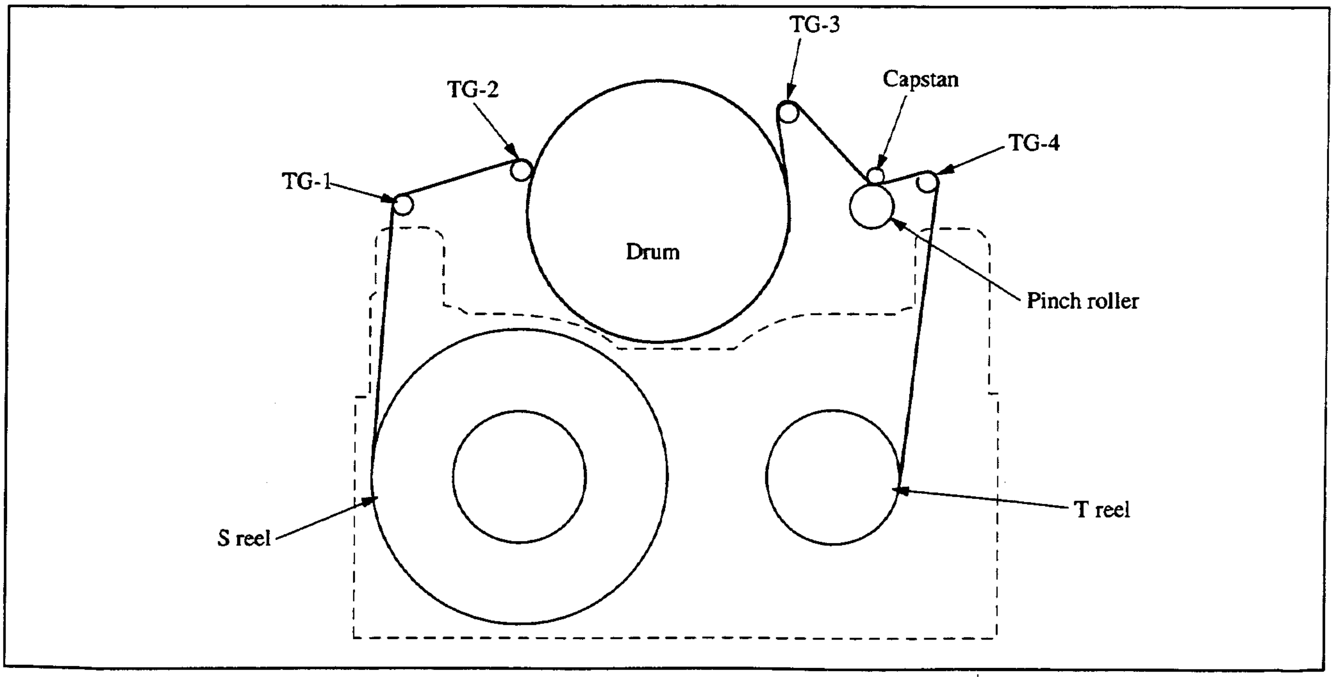


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

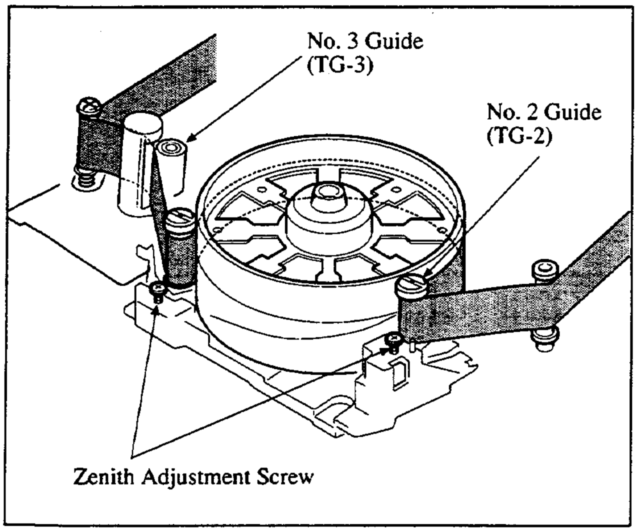


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

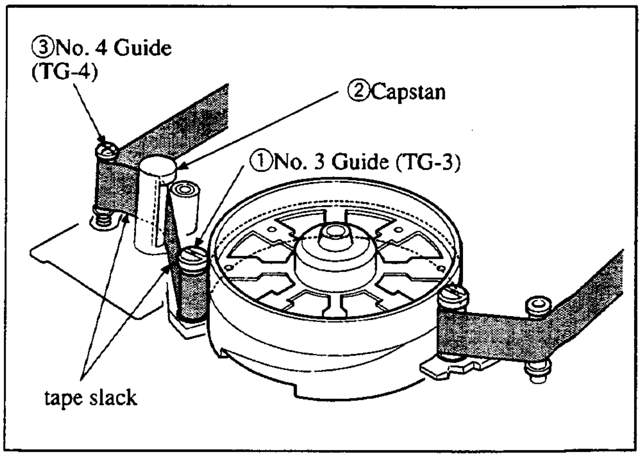


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

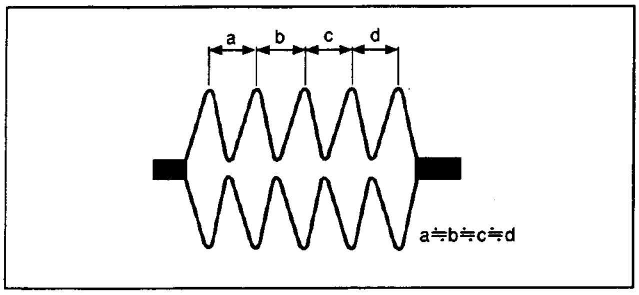


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

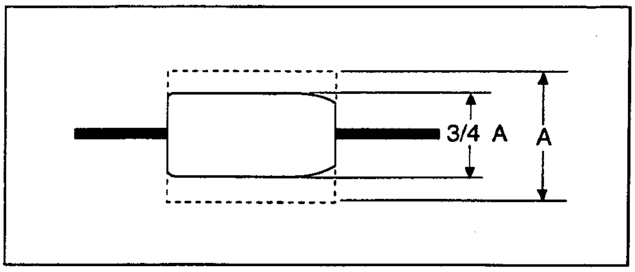


Fig. 31

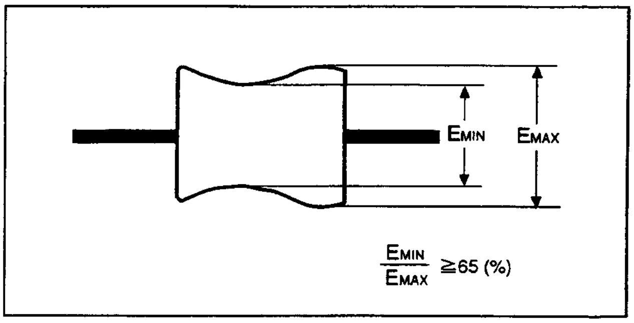


Fig. 32

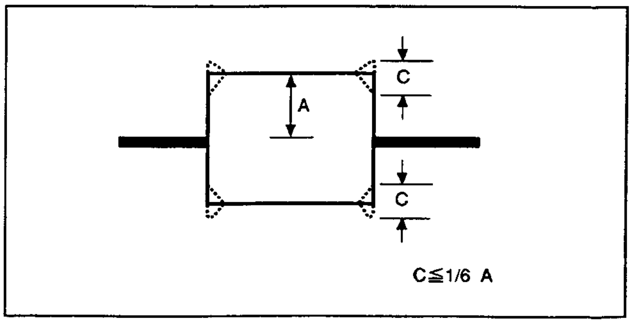


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

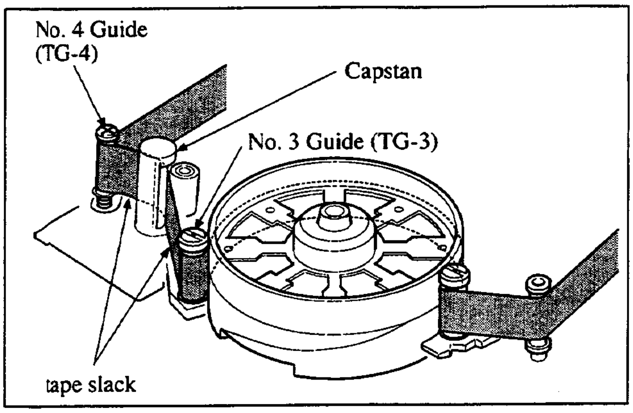


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

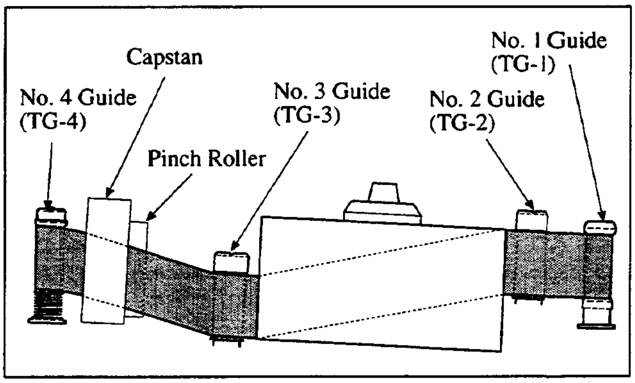
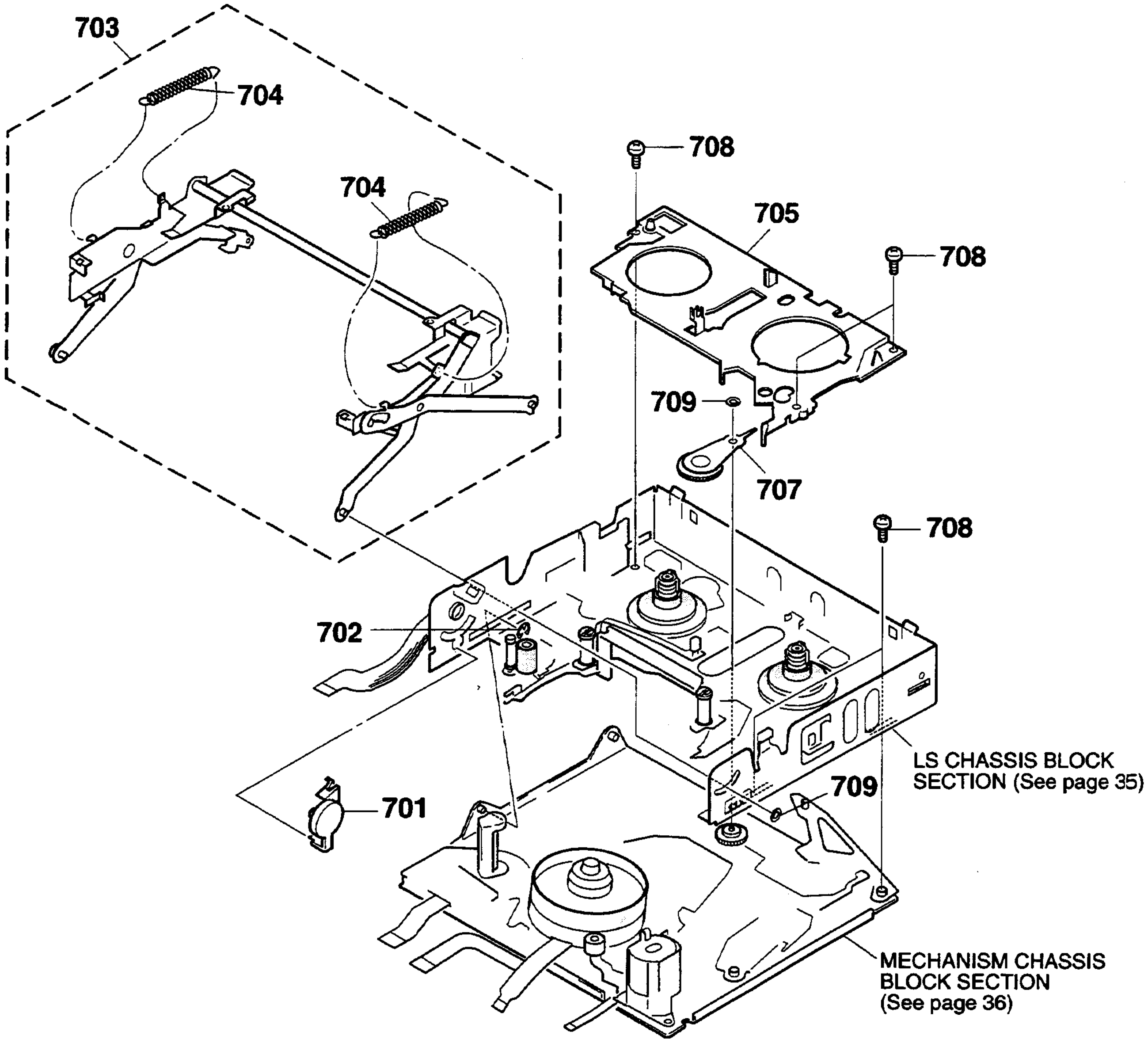


Fig. 35

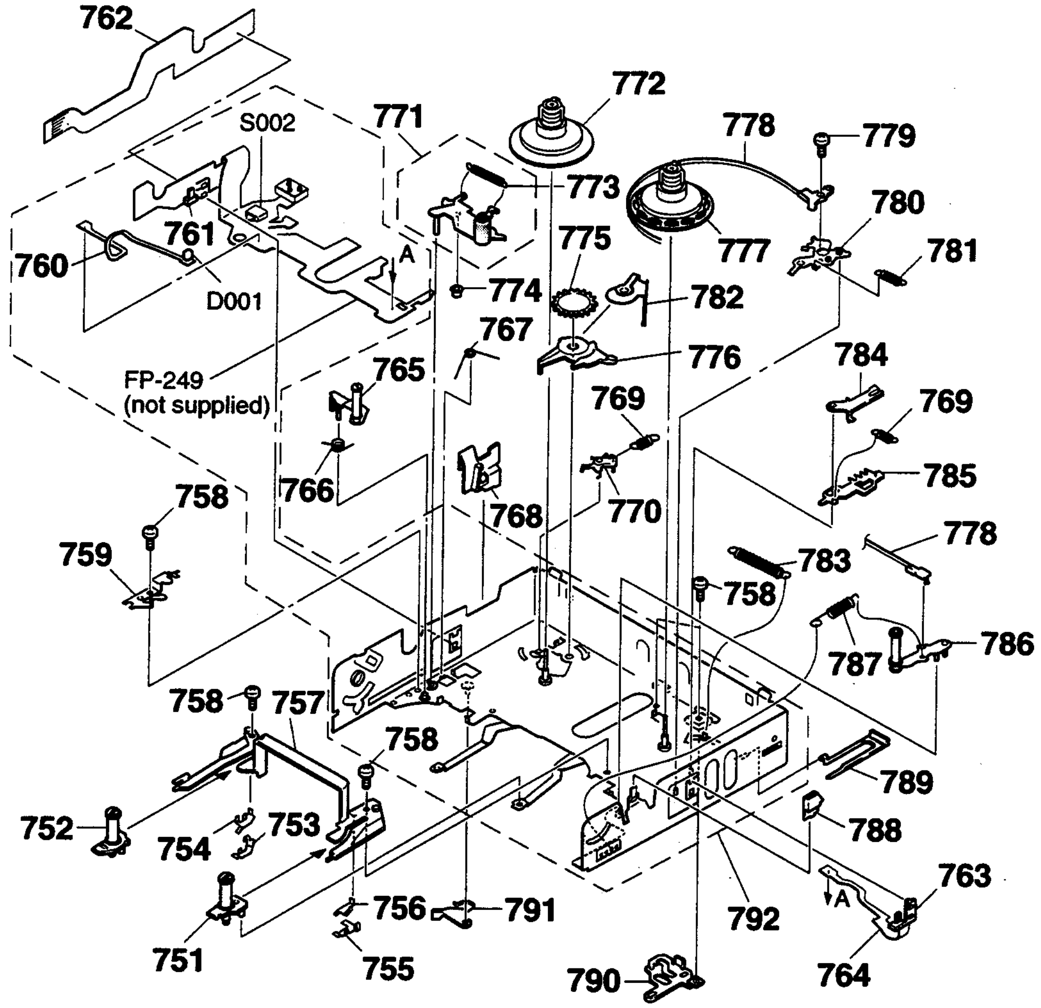
5. EXPLODED VIEWS

5-1. Cassette Compartment Block Section


703
704
704
708
705
708
709
707
708
702
LS CHASSIS BLOCK SECTION (See page 35)
709
701
MECHANISM CHASSIS BLOCK SECTION (See page 36)

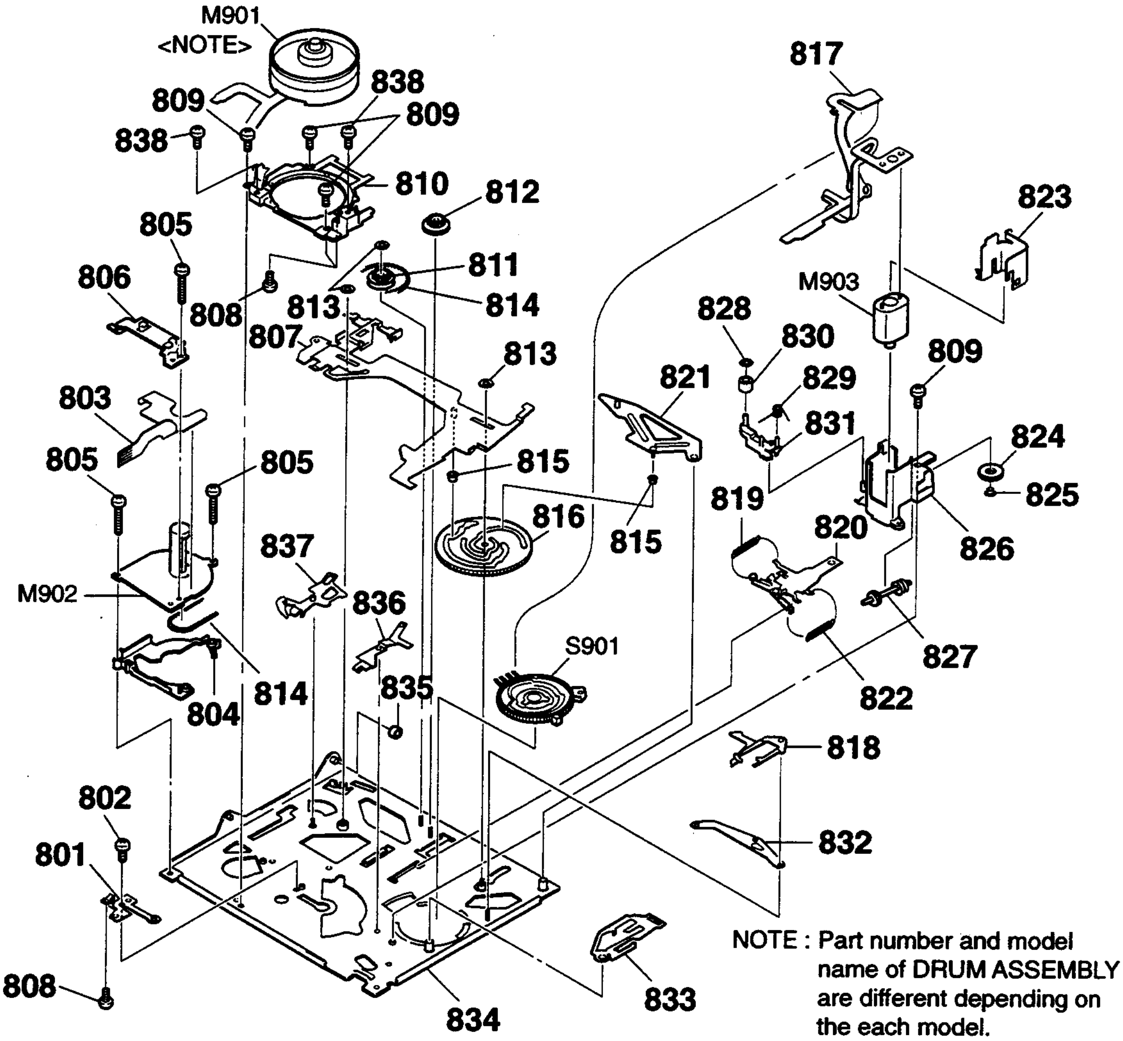
Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	
705	3-965-584-01	RETAINER, GOOSENECK	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	

5-2. LS Chassis Block Section


762
S002
771
772
778
779
773
780
761
775
777
781
760
A
D001
774
782
767
776
784
FP-249
(not supplied)
765
769
769
785
766
758
768
770
778
759
783
758
787
786
758
757
758
789
752
754
753
788
763
A
756
791
792
751
755
790
764

Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	LS CHASSIS ASSY (S1)	
D001	8-719-988-42	DIODE GL453S	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

5-3. Mechanism Chassis Block Section

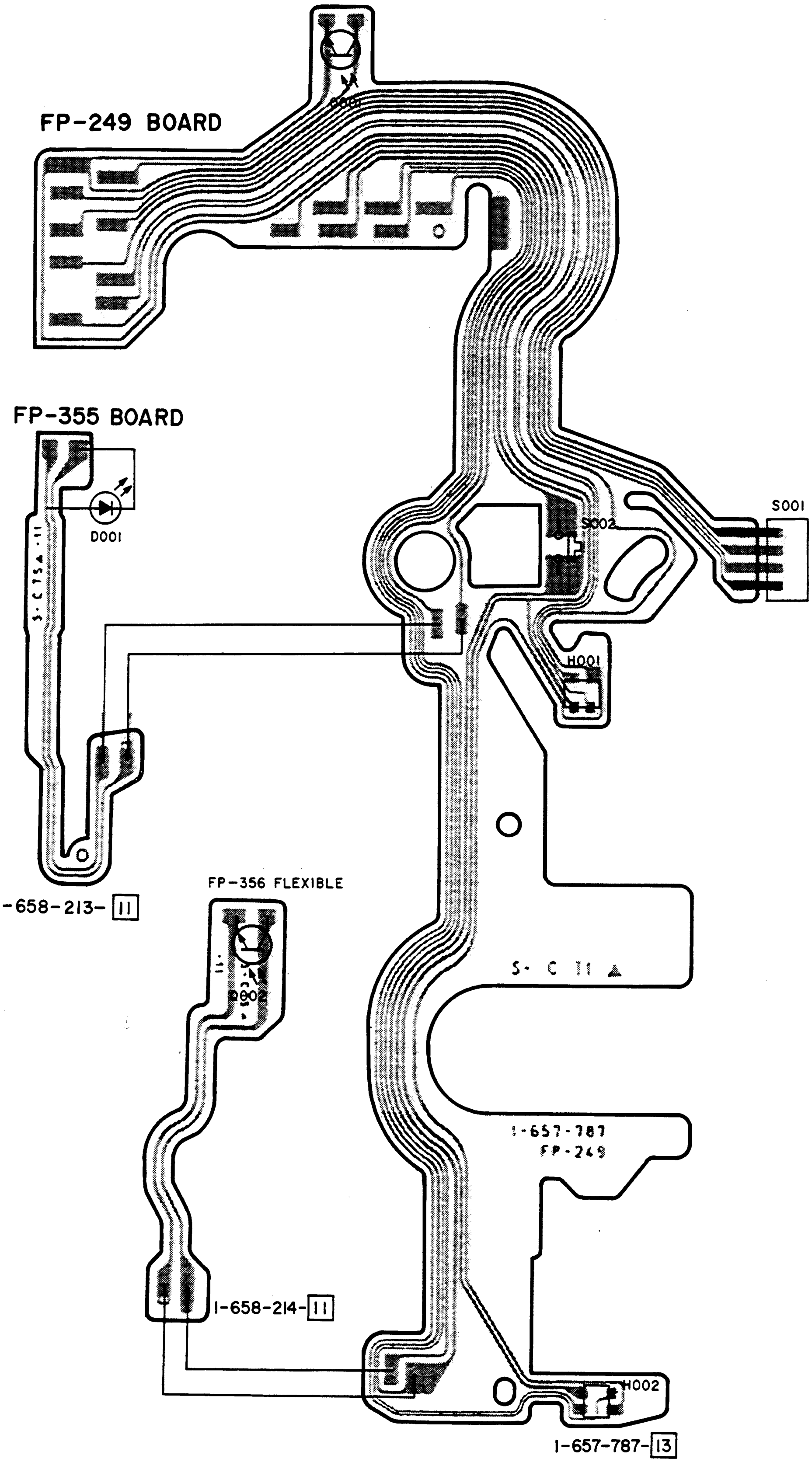

M901
<NOTE>
838
809
838
809
810
812
817
823
805
806
811
808
813
814
807
813
M903
828
830
809
821
829
831
803
824
805
805
815
825
819
816
820
815
826
837
M902
836
S901
827
814
835
822
804
818
802
801
832
808
833
834

NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.

Ref. No.	Part No.	Description	Remarks
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-01	SCREW (M1.7X1.4)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION (BLACK)	
820	X-3945-388-1	SLIDER ASSY, GL	

Ref. No.	Part No.	Description	Remarks
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION (SILVER)	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-966-819-01	SCREW +P1.4×3	
M901	See note.	DRUM BLOCK ASSY	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

6. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM


FP-249 BOARD
Q001
FP-355 BOARD
D001
S-C 75▲ 11
S001
S002
H001
1-658-213-11
FP-356 FLEXIBLE
Q002
S- C 11 ▲
1-657-787
FP-249
1-658-214-11
H002
1-657-787-13

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

English
95H16159-1

Sony Corporation
Consumer A&V Products Company
Personal Products Div.

9-973-801-11

Published by Personal A&V Products Div.
Quality Engineering Dept.

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

SUPPLEMENT-1

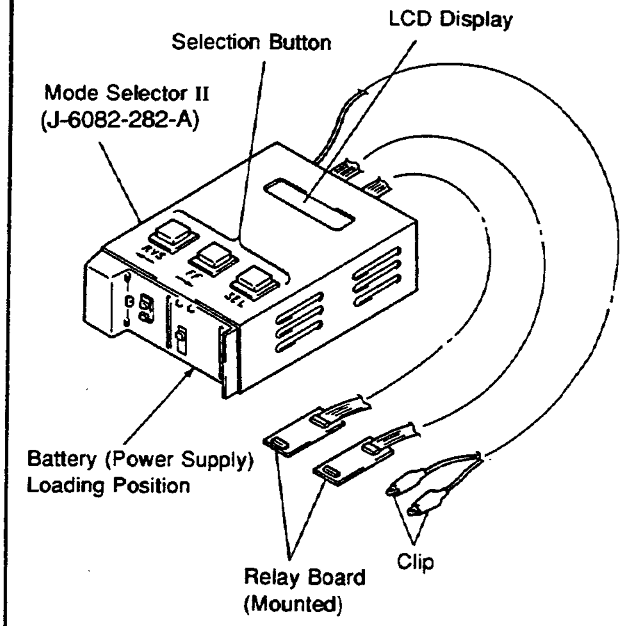
File this supplement with the 8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ.
(96-008)

Subject : USE OF MODE SELECTOR Ⅱ

2-5. USE OF MODE SELECTOR II

2-5-1. Outline

This unit is a mechanism drive tool which supplements the maintenance of each mechanism deck. Its functions are described below.


LCD Display
Selection Button
Mode Selector II
(J-6082-282-A)
Battery (Power Supply)
Loading Position
Relay Board
(Mounted)
Clip

1. **Manual test**

   A mode which drives the motor only while the switch is ON. It enables the operator to control the motor as desired.

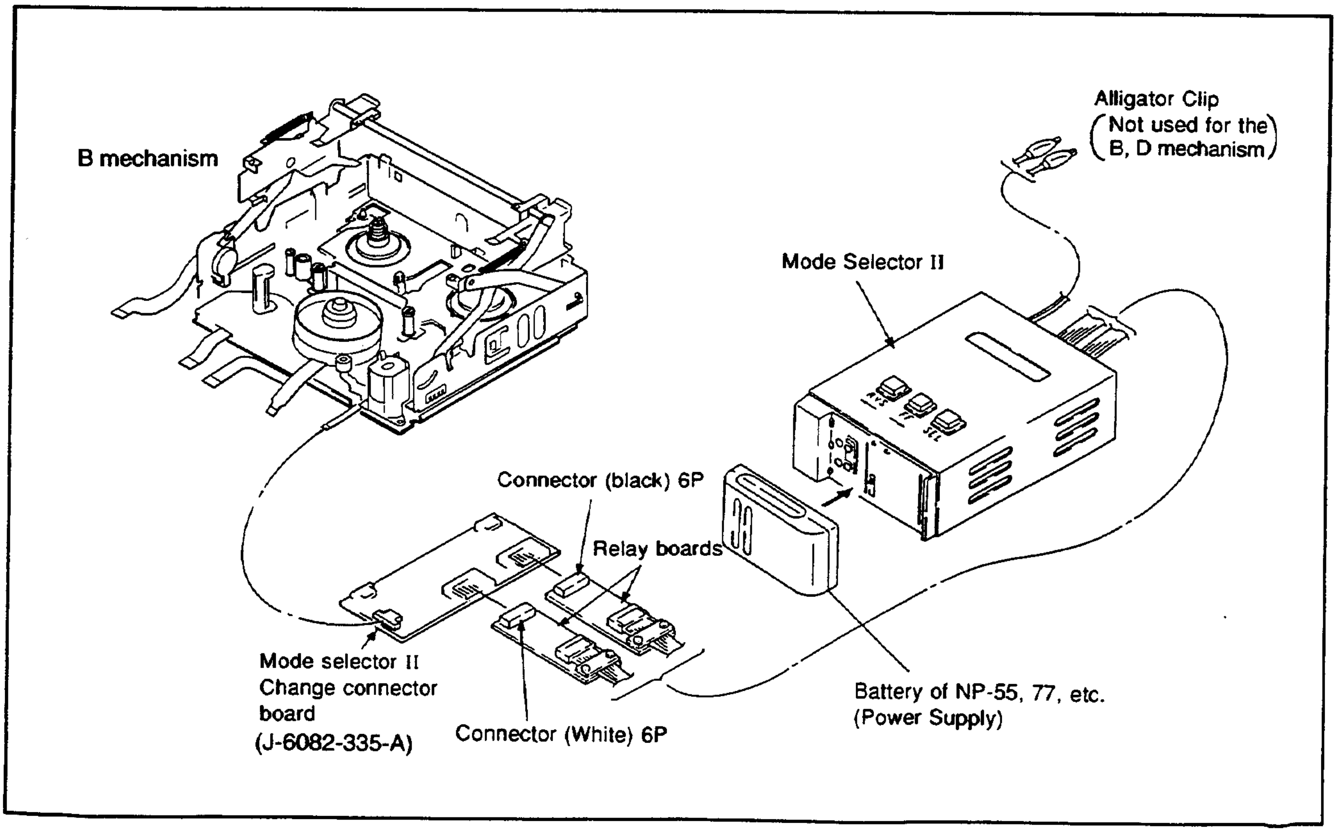
2. **Step test**

   A mode which drives the motor until the current condition detected by the sensor changes to another condition. It enables the movements made by the motor in each operation to be controlled while being checked.

3. **Auto test**

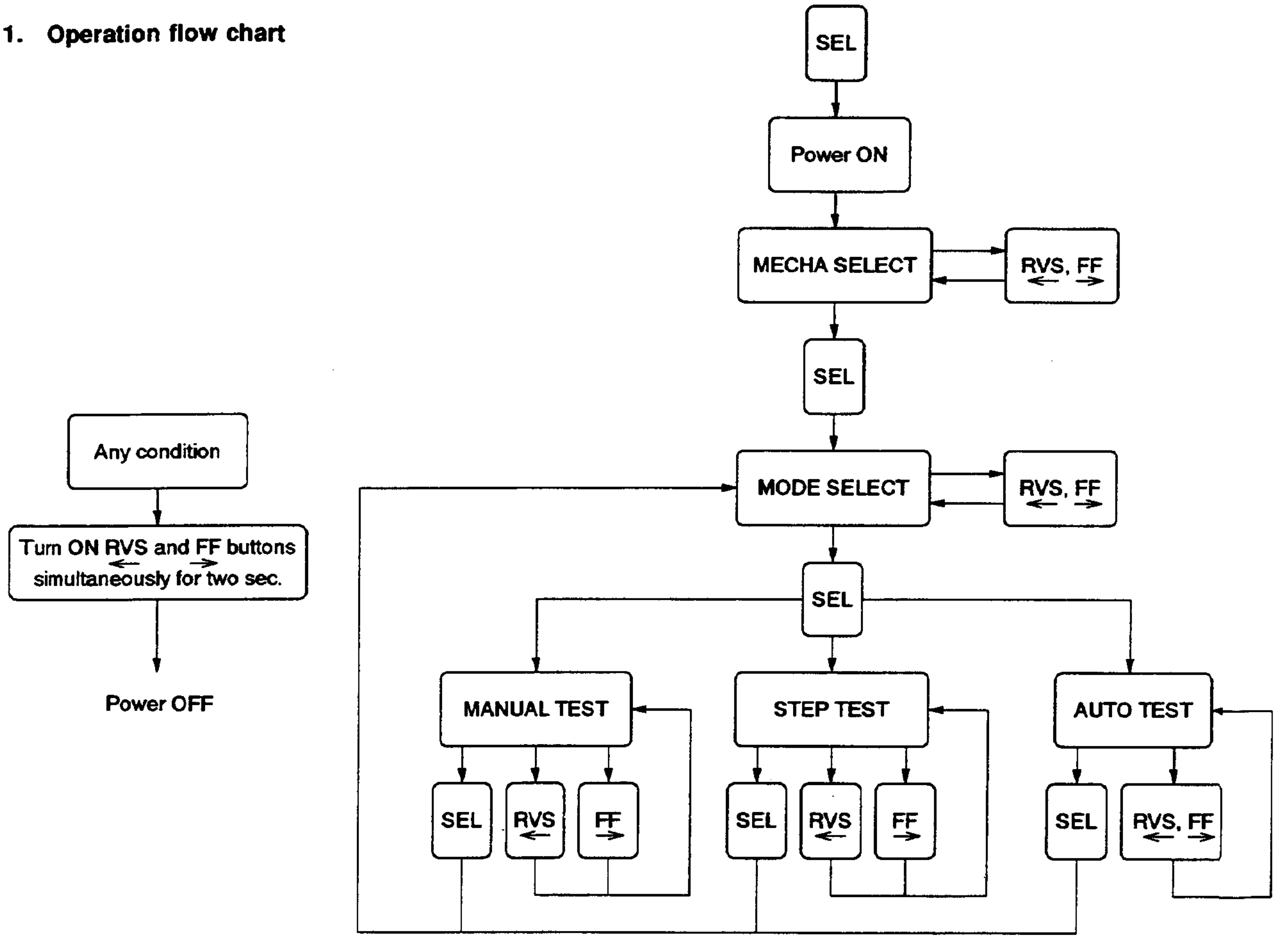
   A mode that checks if the mechanism operates normally according to the condition shift table recorded in the unit for each mechanism deck. All the conditions of the decks are checked through a series of operations.
   An error message is displayed if incorrect shifts and conditions are detected and operations are stopped.

Mode Selector II (J-6082-282-A) Connection


B mechanism
Alligator Clip
(Not used for the B, D mechanism)
Mode Selector II
Connector (black) 6P
Relay boards
Mode selector II
Change connector
board
(J-6082-335-A)
Connector (White) 6P
Battery of NP-55, 77, etc.
(Power Supply)

2-5-2. Operation

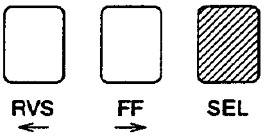
1. Operation flow chart


SEL
Power ON
MECHA SELECT
RVS, FF
SEL
MODE SELECT
RVS, FF
SEL
MANUAL TEST
STEP TEST
AUTO TEST
SEL
RVS
FF
SEL
RVS
FF
SEL
RVS, FF
Any condition
Turn ON RVS and FF buttons simultaneously for two sec.
Power OFF

(Excluding the K mechanism)

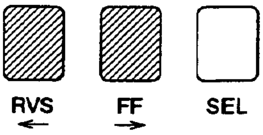
2. Turning ON the mode selector II

To turn ON the power supply, turn on the SEL button.



3. Turning OFF the mode selector II

To turn OFF the power supply, turn on the RVS and FF buttons simultaneously for more two seconds.



4. Mechanism selection

Immediately after the power supply has been turned on, "MECHA SELECT" will be displayed on the LCD. Select the desired mechanism using the RVS and FF buttons, and press the SEL button to complete the selection. (Fig. I shows the B mechanism)

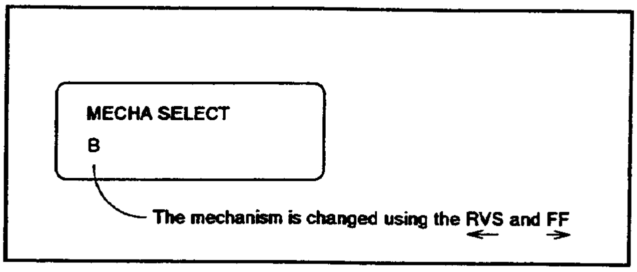

MECHA SELECT
B
The mechanism is changed using the RVS and FF

Fig. I

5. Mode selection

Select the test-"MANUAL", "STEP", and "AUTO"- to be executed.
Select the desired mode on the screen using the RVS and FF buttons, and press the SEL button to complete the selection.

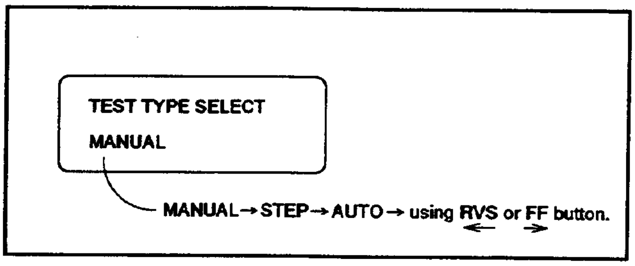

TEST TYPE SELECT
MANUAL
MANUAL→STEP→AUTO→ using RVS or FF button.

Fig. II

6. Manual test

A mode that drives the motor only when the RVS or FF button is pressed.

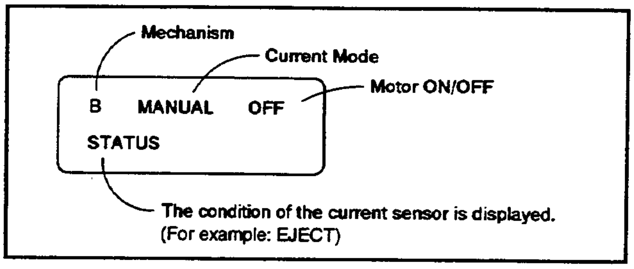

Mechanism
Current Mode
Motor ON/OFF
B MANUAL OFF
STATUS
The condition of the current sensor is displayed. (For example: EJECT)

Fig. III

7. Step test

A mode that drives the motor until the direction of motor operations is set using the RVS and FF buttons and the current condition is changed.

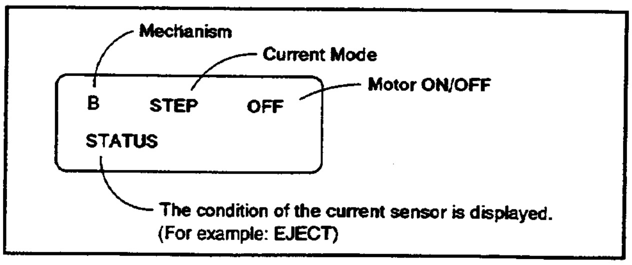

Mechanism
Current Mode
Motor ON/OFF
B STEP OFF
STATUS
The condition of the current sensor is displayed. (For example: EJECT)

Fig. IV

8. Auto test

Each mechanism deck is checked for its recorded operation sequence. The check is executed by comparing the sensor signals generated in the operation sequence with the recorded operation sequence.
The same operation is carried out when the RVS or FF button is turned on.

Note: Sometimes the AUTO TEST spoils sequence due to a small range of S. OFF, but this is not a D mechanical trouble.

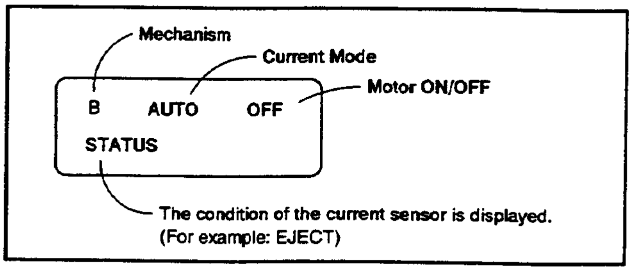

Mechanism
Current Mode
Motor ON/OFF
B AUTO OFF
STATUS
The condition of the current sensor is displayed. (For example: EJECT)

Fig. V

Mechanism condition (position) shifting order

After selecting the mechanism, select one mode from the two test modes, excluding the AUTO test. Then press the $\underset{\longleftarrow}{\text{RVS}}$ or $\underset{\longrightarrow}{\text{FF}}$ button and specify the mechanism condition (position). (Displayed at the STATUS area)
EJECT ↔ USE ↔ LOAD ↔ STOP ↔ TURN ↔
R/P ↔ RVS

MD name Code				B mechanism
A	B	C		
1	0	0	1	EJECT
1	1	0	2	USE
0	1	0	3	LOAD
0	1	1	4	STOP
0	0	1	5	TURN
0	0	0	6	R/P
1	0	1	7	RVS

9. Battery alarm display

When the battery voltage (power supply unit of the unit) drops, this alarm is displayed, no operations can be carried out and the battery must be changed.

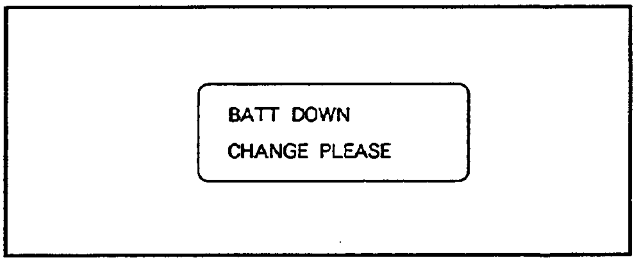

BATT DOWN
CHANGE PLEASE

Fig. VI

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

English
95H15159-1

Sony Corporation
Consumer A&V Products Company
Personal Products Div.

Published by Personal A&V Products Div.
Quality Engineering Dept.

9-973-801-82

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

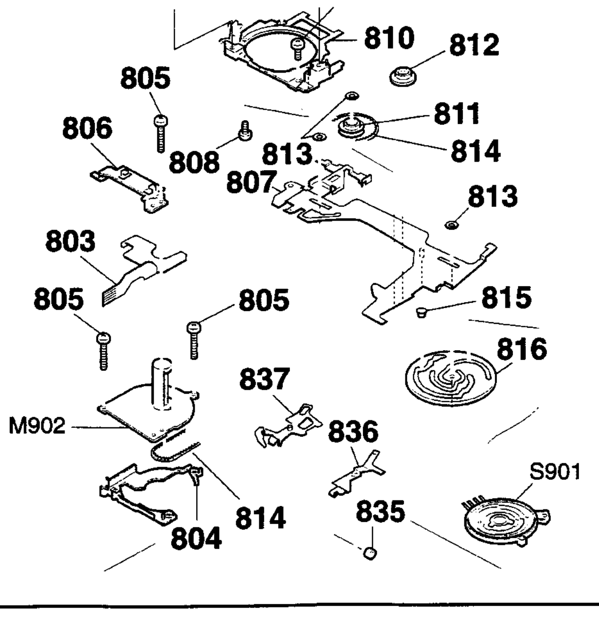
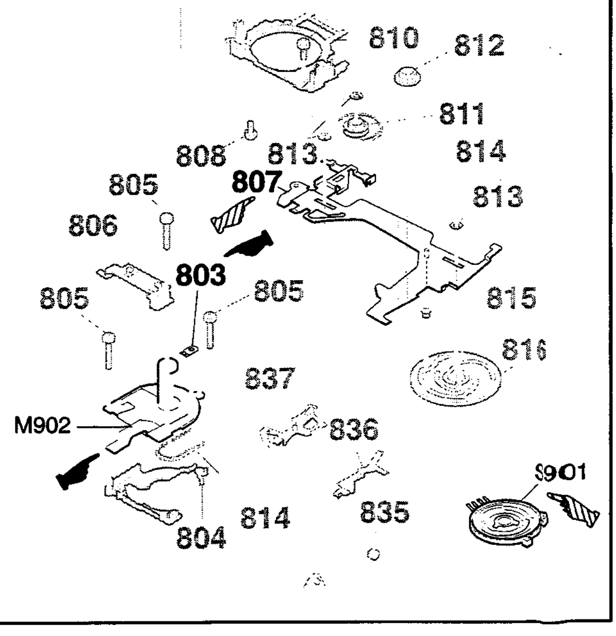
B MECHANISM

video 8

CORRECTION-1

Please correct the 8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ.
(97-026)

☛ : indicates corrected portion. 803 (FP-248 FLEXIBLE BOARD)

Page	INCORRECT	CORRECT
36	 810 812 805 806 811 808 813 814 807 813 803 805 805 815 816 837 M902 836 S901 814 835 804	 810 812 811 808 813 814 805 807 813 806 803 805 805 815 816 837 M902 836 S901 814 835 804

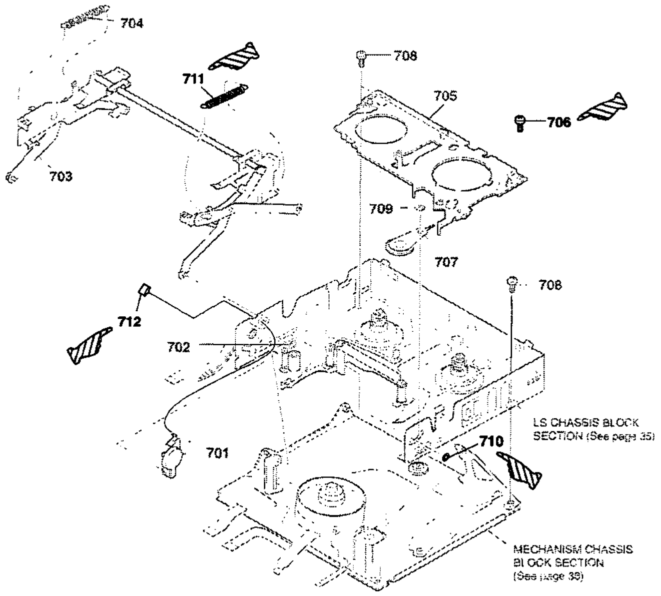
▨ : changed in the middle of production.
(change)

Page	FORMER				NEW	
36	801	3-965-525-01	GROUND, SHAFT	⇨	X-3947-343-1	GROUND (IM) ASSY, SHAFT
	807	X-3945-387-1	SLIDER ASSY, M	⇨	3-971-644-1	SLIDER (2), M
	834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	⇨	X-3947-915-2	CHASSIS ASSY, MECHANICAL
	S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	⇨	1-762-436-15	SWITCH, ROTARY (ENCODER)

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

▨ : changes and additions
Page 34

5-1. Cassette Compartment Block Section


704
711
708
705
706
703
709
707
708
712
702
LS CHASSIS BLOCK SECTION (See page 35)
701
710
MECHANISM CHASSIS BLOCK SECTION (See page 39)

(change)

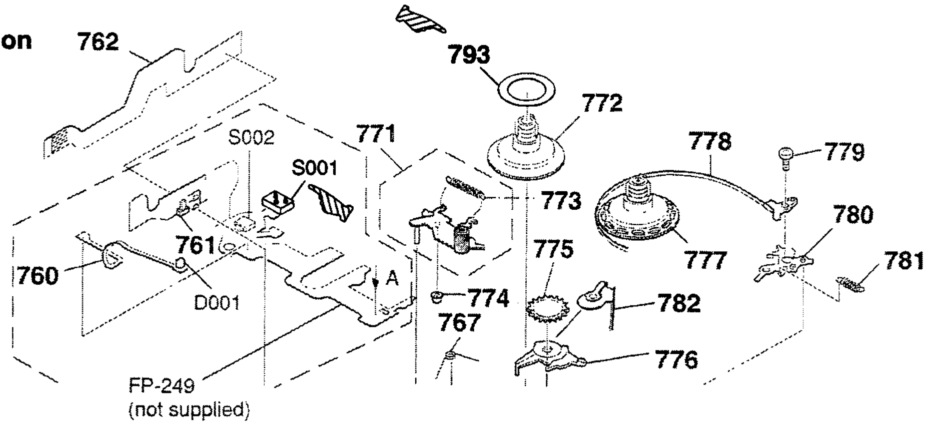
	FORMER			NEW	
706	3-947-503-01	SCREW (M 1.4 × 2.5)	⇨	3-976-055-01	SCREW, STEP (M 1.4 × 1)
710	3-331-007-21	WASHER	⇨	3-727-176-01	WASHER, STOPPER
711	3-965-587-01	SPRING, TENSION (POWER TENSION)	⇨	3-973-268-01	SPRING, TENSION (POWER TENSION S)

(addition)

712	3-971-076-01	FASTENER, D

▨ : changes and additions
Page 35

5-2. LS Chassis Block Section


762
793
772
S002
771
S001
778
779
773
780
761
760
775
777
781
A
774
782
D001
767
776
FP-249
(not supplied)

(change)

	FORMER			NEW	
786	X-3945-395-1	ARM ASSY, TG1	⇨	X-3947-355-1	ARM ASSY(2), TG1

(addition)

793	3-972-838-01	SPACER, REEL
S001	1-692-614-11	SWITCH, PUSH (3KEY) (Hi8 MP, ME/MP, REC PROOF)

Notizen

Notizen

Notizen

8mm Video MECHANICAL ADJUSTMENT MANUAL VII

9-973-801-11 (MANUAL)
9-973-801-82 (SUPP.1)
9-973-801-92 (CORR.1)

Sony Corporation
Consumer A&V Products Company
Personal Products Div.

Published by Personal A&V Products Div.
Quality Engineering Dept.

CCD-TR86/TR96/TR506/TR506PK/TR507/TR916(NTSC)
CCD-TR501E/TR502E/TR503E/TR506E/TR620E/TR720E/TR740E(PAL)
RMT-713

SONY.

SERVICE MANUAL

US Model
CCD-TR86/TR96/TR916(NTSC)
Canadian Model
CCD-TR86/TR96(NTSC)
AEP Model
UK Model
CCD-TR501E/TR502E/
TR620E(PAL)
E Model
CCD-TR506/TR507(NTSC)
CCD-TR501E/TR502E/TR503E/
TR506E/TR720E/TR740E(PAL)
Australian Model
CCD-TR501E/TR503E(PAL)
Hong Kong Model
CCD-TR503E/TR720E(PAL)
Tourist Model
CCD-TR501E(PAL)
Chinese Model
CCD-TR502E/TR506E
TR720E/TR740E(PAL)

SUPPLEMENT-1

File this supplement with the Service Manual.

(97-006)

- Addition of Chinese model.
  Target models
  CCD-TR502E, CCD-TR506E
  CCD-TR720E, CCD-TR740E
  All models other than the above listed models are not related with the addition of Chinese model.
- Data Change of Page : F

Contents of the Chinese models CCD-TR502E, CCD-TR506E, CCD-TR720E and CCD-TR740E are the same as the original models SERVICE MANUAL (9-973-938-11).

CH : CHINESE

Page	Contents of Additions
5-2	52 3-969-339-31 BELT, GRIP (TR502E : CH) 53 X-3947-230-1 CABINET (L) ASSY (TR502E : CH)
5-3	123 3-974-216-91 WINDOW, LCD (TR502E : CH)
5-4	152 A-7073-071-A JK-153 BOARD, COMPLETE (TR502E : CH)
5-34E	ACCESSORIES & PACKING MATERIALS * 3-976-008-31 INDIVIDUAL CARTON (TR502E : CH) * 3-976-008-32 INDIVIDUAL CARTON (TR506E : CH) ⚠ A-7029-068-A AC-V16 (CHINESE)

CCD-TR86/TR96/TR506/TR506PK/TR507/TR916(NTSC)
CCD-TR501E/TR502E/TR503E/TR506E/TR620E/TR720E/TR740E(PAL)

Correct your service manual as shown below.

✎ : Corrections

page	INCORRECT	CORRECT
5-5	208 8-756-016-10 LCX005BK-5	208 8-753-016-10 LCX005BK-5

The page : F data is changed. Correct your service manual as shown below.

< Page 6-7 >

1-1-5. Page F Address List : __ Indicates the corrected portion.

Address	Adjustment Data	
	Initial Value	Memo Column
94	*	←

< Page 6-10, 6-11 >

5. Page F data modification : __ Indicates the corrected portion.

Address	Data														
	TR86	TR96	TR506	TR507	TR916	TR501E		TR502E		TR503E	TR506E	TR620E	TR720E		TR740E
	—	—	—	—	—	AEP	E/AUS/ HK	E	AEP	—	—	AEP	UK	—	—
08	01	←	00	←	←	04	←	←	←	04	←	←	←	←	←
5F	FD	←	CA	←	FD	AA	←	AA	←	←	←	←	←	←	←
60	DD	←	AC	←	DD	8C	←	8C	←	←	←	←	←	←	←
77	48	47	48	←	47	48	←	48	←	←	←	46	←	←	←
94	6A	BA	6A	←	BA	6A	←	6A	←	←	←	←	←	←	←

Sony Corporation
Personal A&V Products Company

97G1602-1
Printed in Japan © 1997.7
Published by Quality Engineering Dept.
(Osaki East)

CCD-TR86/TR96/TR506/TR506PK/TR507/TR916(NTSC)
CCD-TR501E/TR502E/TR503E/TR506E/TR620E/TR720E/TR740E(PAL)
RMT-713

SONY

SERVICE MANUAL

US Model
CCD-TR86/TR96/TR916(NTSC)
Canadian Model
CCD-TR86/TR96(NTSC)
AEP Model
UK Model
CCD-TR501E/TR502E/
TR620E(PAL)
E Model
CCD-TR506/TR507(NTSC)
CCD-TR501E/TR502E/TR503E/
TR506E/TR720E/TR740E(PAL)
Australian Model
CCD-TR501E/TR503E(PAL)
Hong Kong Model
CCD-TR503E/TR720E(PAL)
Tourist Model
CCD-TR501E(PAL)
Chinese Model
CCD-TR502E/TR506E
TR720E/TR740E(PAL)

SUPPLEMENT-1

File this supplement with the Service Manual.

(97-006)

- Addition of Chinese model.
  Target models
  CCD-TR502E, CCD-TR506E
  CCD-TR720E, CCD-TR740E
  All models other than the above listed models are not related with the addition of Chinese model.
- Data Change of Page : F

Contents of the Chinese models CCD-TR502E, CCD-TR506E, CCD-TR720E and CCD-TR740E are the same as the original models SERVICE MANUAL (9-973-938-11).

CH : CHINESE

Page	Contents of Additions		
5-2	52	3-969-339-31	BELT, GRIP (TR502E : CH)
	53	X-3947-230-1	CABINET (L) ASSY (TR502E : CH)
5-3	123	3-974-216-91	WINDOW, LCD (TR502E : CH)
5-4	152	A-7073-071-A	JK-153 BOARD, COMPLETE (TR502E : CH)
5-34E	ACCESSORIES & PACKING MATERIALS		
	*	3-976-008-31	INDIVIDUAL CARTON (TR502E : CH)
	*	3-976-008-32	INDIVIDUAL CARTON (TR506E : CH)
	⚠	A-7029-068-A	AC-V16 (CHINESE)

CCD-TR86/TR96/TR506/TR506PK/TR507/TR916(NTSC)
CCD-TR501E/TR502E/TR503E/TR506E/TR620E/TR720E/TR740E(PAL)

Correct your service manual as shown below.

✎ : Corrections

page	INCORRECT	CORRECT
5-5	208 8-756-016-10 LCX005BK-5	208 8-753-016-10 LCX005BK-5

The page : F data is changed. Correct your service manual as shown below.

< Page 6-7 >

1-1-5. Page F Address List : __ Indicates the corrected portion.

Address	Adjustment Data	
	Initial Value	Memo Column
94	*	←

< Page 6-10, 6-11 >

5. Page F data modification : __ Indicates the corrected portion.

Address	Data														
	TR86	TR96	TR506	TR507	TR916	TR501E		TR502E		TR503E	TR506E	TR620E	TR720E		TR740E
	—	—	—	—	—	AEP	E/AUS/ HK	E	AEP	—	—	AEP	UK	—	—
08	01	←	00	←	←	04	←	←	←	04	←	←	←	←	←
5F	FD	←	CA	←	FD	AA	←	AA	←	←	←	←	←	←	←
60	DD	←	AC	←	DD	8C	←	8C	←	←	←	←	←	←	←
77	48	47	48	←	47	48	←	48	←	←	←	46	←	←	←
94	6A	BA	6A	←	BA	6A	←	6A	←	←	←	←	←	←	←

Sony Corporation
Personal A&V Products Company

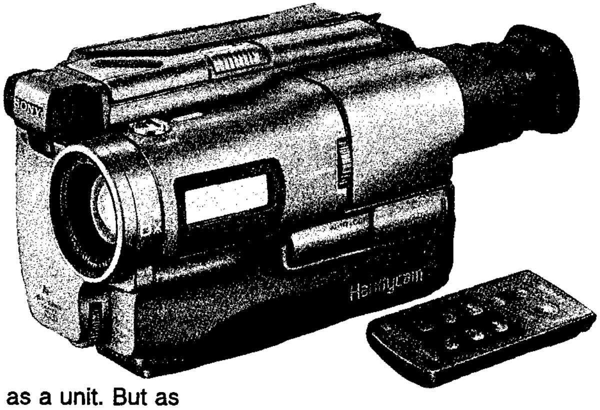
97G1602-1
Printed in Japan © 1997.7
Published by Quality Engineering Dept.
(Osaki East)

V13068

CCD-TR8E
RMT-703

SERVICE MANUAL

AEP Model
UK Model



Remote commander is available as a unit. But as individual parts the battery case lid of commander is only avaiable.

video Hi8
Handycam
FL MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL II " (9-972-705-11).

SPECIFICATIONS

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed	SP mode: Approx. 20.051 mm (13/16 in)/second LP modo: Approx 10.058 mm (13/32 in)/second
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8.5 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (monochrome)
Lens	Combined 8 x power zoom lens f=5.9 to 47.2 mm (1/4 to 1 7/8 inches) 42 to 336 mm (1 11/16 to 13 1/4 inches) when converted into a 35-mm still camera F 1.4 to 2.2 Filter diameter 37 mm (1 1/2 inches) TTL autofocus system inner focus wide macro system
Colour temperature	Auto
Minimum illumination	3 lx (F 1.4)
Illumionation range	3 lx to 100,000 lx
Recommended illumination	More than 100 lx

Input and output connectors

S video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced,
Video output	Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output	Phono jacks (2: stereo L and R), −7.5 dBs, (at load impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special mini-jack, DC 5 V
Headphones jack	Stereo mini-jack (ø 3.5)
Remote jack	Stereo mini-mini-jack (ø 2.5)
MIC jack	Stereo mini-jack, −66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 kilohms (ø 3.5)
MIC DC OUT	Special minijack, DC 5 V
Handycam Station terminal	20pin special connector

— Continued on next page —

Hi8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

General

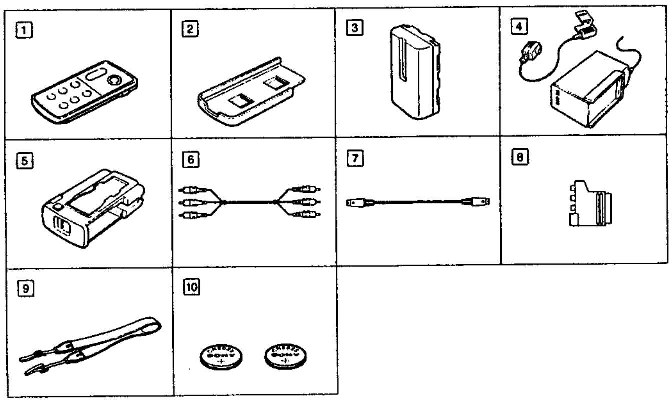
Power requirements	7.2 V (battery pack) 6.5 V (AC power adaptor)
Power consumption	5.3 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to 140°F)
Dimensions	Approx. 92 x 102 x 195 mm (w/h/d) (3 5/8 x 4 1/8 x 7 3/4 inches)
Mass	Approx. 690 g (1 lb 8 oz) excluding the battery pack, lithium battery, cassette, and shoulder strap Approx. 870 g (1 lb 15 oz) including the battery pack NP-500, lithium battery CR2025, cassette E5-60, and shoulder strap
Microphone	Electret condenser microphone, stereo type

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Design and specifications are subject to change without notice.

Supplied accessories



1 Wireless Remote Commander (1) (p.22, 45)

2 Remote Commander Holder (1) (p.46)

3 NP-500 Battery Pack (1) (p.5)

4 AC-V500 AC power adaptor (1) (p.5, 24)

5 HSA-V500 Handycam Station (1) (p.5, 19)

6 A/V connecting cable (1) (p.20)

7 S video connecting cable (1) (p.20)

8 21-pin adaptor (1) (p.20)

9 Shoulder strap (1) (p.46)

10 CR2025 Lithium Battery (2) (p.10)
These are already inserted in the camcorder and the Remote Commander.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

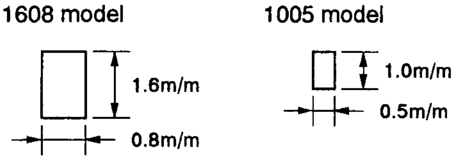
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

USING THIS SERVICE MANUAL

This unit uses the 1005 model chip part. They are smaller than the previous ones (1608 model, etc.) used, and have enabled the unit to achieve higher accuracy.

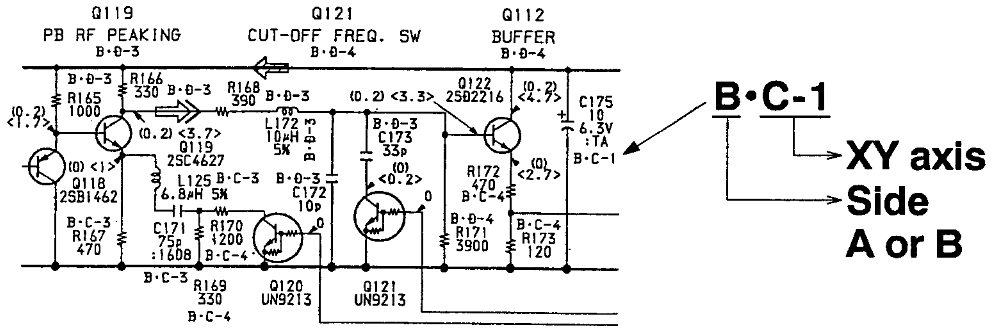

1608 model
1005 model
1.6m/m
0.8m/m
1.0m/m
0.5m/m

The following details have been included in this service manual. Refer to them in repairs.

1. Addresses indicating locations of parts on the VC-129 board

As the VC-129 board, the main board of the unit, mounts many parts, the following addresses have been displayed so that parts can be located quickly.

1-1. Addresses of all parts are displayed in the schematic diagrams for the VC-129 board as follows. (Red)


Q119
PB RF PEAKING
B·D-3
Q121
CUT-OFF FREQ. SW
B·D-4
Q112
BUFFER
B·D-4
Q118
2SB1462
Q119
2SC4627
Q122
2SD2216
Q120
UN9213
Q121
UN9213
R165
1000
R166
330
R167
470
R168
390
R169
330
R170
1200
R171
3900
R172
470
R173
120
L125
6.8μH 5%
L172
10μH
C171
75p
:1608
C172
10p
C173
33p
C175
10
6.3V
:TA
B•C-1
XY axis
Side
A or B

1-2. An actual-sized transparent sheet showing addresses is provided

An actual-sized sheet showing addresses has been attached to the bottom of the color reproduction frame sheet at the end of this service manual. Tear it off and use.

Some addresses are also printed by silkscreen process on the board.

1-3. Address frames are displayed in printed wiring boards

Two types of printed wiring boards have been provided-the original ones with patterns and those without patterns.

Address frames are also shown in the printed wiring boards in red.

1-4. Resistors and capacitors are differentiated from other parts by colors in printed wiring boards.

Resistors and capacitors have been colored red so that parts can be distinguished easily.

1-5. Addresses are displayed in Electrical Parts List

Addresses have been displayed according to the numbers of diagrams in the Electrical Parts List.

2. Troubleshooting is included in circuit diagrams

Troubleshooting and outlines of adjustments have been added to important points in the diagrams according to the flow of the signals.

Also, schematic diagrams have not been divided into smaller sections but provided for each system.

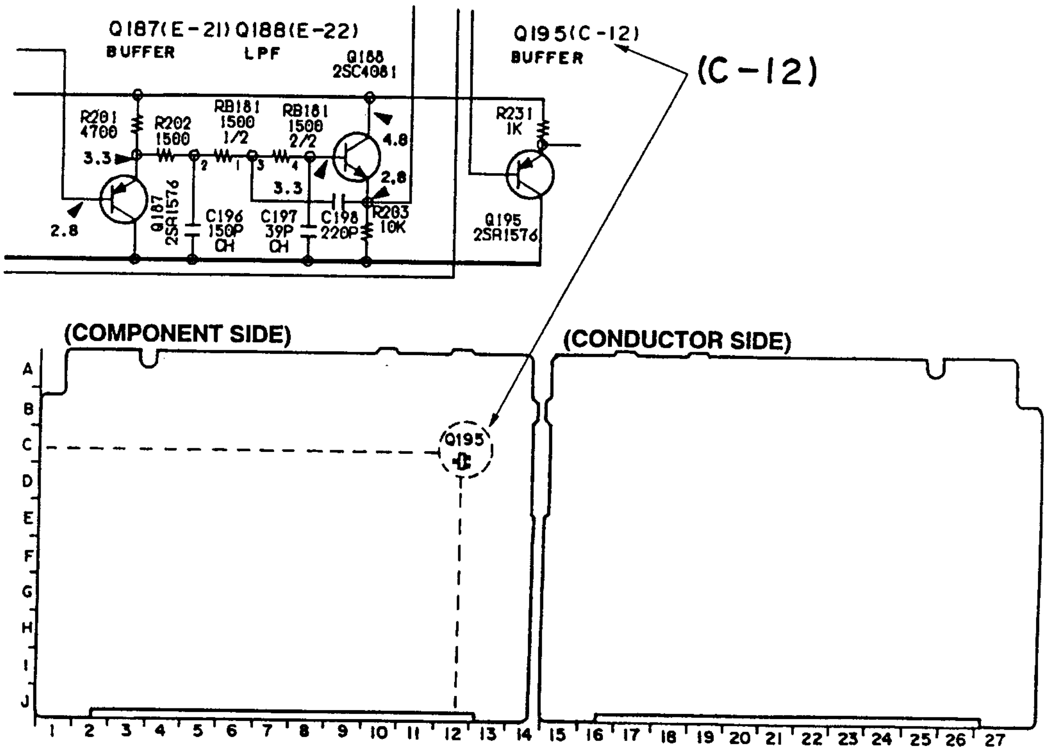
— Continued on next page —

3. Adjustments

1. The text has been simplified and reduced. More tables have been used instead for descriptions.
2. Items that need to be adjusted when replaced, such as lens, imager, etc. have been listed.
3. Related adjustments have been listed below each adjustment.

[DISPLAY OF SEMICONDUCTOR LOCATIONS OTHER THAN VC-129 BOARD]

The locations for mounting semiconductors (IC, transistor, diode) other than the VC-129 board are shown in red in circuit diagrams, as shown in the figure below. This enables semiconductors to be located easily in the printings when repairing. Please use them in repairs.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
Q195
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [❖] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

TABLE OF CONTENTS

Section Title Page

1. GENERAL

Charging and Installing the NP-500 Battery Pack ········ 8
Setting the Date and Time ········ 10
Inserting a Cassette ········ 11
Adjusting the Viewfinder Lens ········ 12
Hints for Better Shooting ········ 12
Camera Recording ········ 13
Connections for Playback ········ 15
Playing Back a Tape ········ 16
Using House Current ········ 17
Selecting Automatic or Manual Adjustment Modes ········ 18
Focusing Manually ········ 18
Adjusting the Exposure ········ 19
Using the PROGRAM AE Function ········ 20
Changing the Mode Settings ········ 20
Editing onto Another Tape ········ 22
Usable Cassettes and Recording/Playback Modes ········ 23
Changing the Lithium Batteries ········ 23
Maintenance Information and Precautions ········ 24
Using Your Camcorder Abroad ········ 26
Identifying the Parts ········ 26
Indications in the Display Window and the Viewfinder ········ 29

2. DISASSEMBLY

2-1. Removal of Bottom Cabinet Assembly ········ 30
2-2. Removal of F Panel Assembly ········ 30
2-3. Removal of Cabinet (L) Assembly and Cassette Case ········ 31
2-4. Removal of Cabinet (R) Assembly ········ 31
2-5. Removal of Control Switch Block (FK-33 Board), Terminal Board ········ 32
2-6. Removal of Control Switch Block (CF-33 Board), Battery Holder Assembly (FU-111 Board) ········ 32
2-7. Removal of EVF Assembly (VF-55, VF-56 Boards) ········ 33
2-8. Opening of VC-129 Board (Service Position) ········ 33
2-9. Removal of Lens Assembly (LSV-100A) ········ 34
2-10. Removal of Cassette Compartment Holder Assembly ········ 34
2.11. Mounting of Iris Meter (IRX-002) ········ 35
2-12. Mounting of Stepping Motor (SPB-01S01N) ········ 35
2-13. Mounting of MR Sensor Section When Mounting M Flexible Block Assembly ········ 36

Section Title Page

3. DIAGRAMS

3-1. Circuit Boards Location ········ 37
3-2. Overall Block Diagram ········ 38
3-3. Camera Block Diagram ········ 42
3-4. Camera Micro Processor (VC-129 Board IC653: MC68HC11FU) Pin Functions ········ 47
3-5. Video Block Diagram ········ 49
3-6. Servo/System Control Block Diagram ········ 54
3-7. Auto Focus Micro Processor (LD-63 Board IC751: CXP80624AR) Pin Functions ········ 59
3-8. Mechanism Control Micro Processor (VC-129 Board IC201: CXP80624) Pin Functions ········ 62
3-9. Mode Control Micro Processor (VC-129 Board IC903: MB89092PFV-G-112A) Pin Functions ········ 65
3-10. Interface ········ 69
  3-10-1. System Control – Video and Audio Block Interface (VC-129 Board) ········ 69
  3-10-2. System Control – Servo Block Interface (VC-129 Board) ········ 73
3-11. Audio Block Diagram ········ 76
3-12. EVF Block Diagram ········ 79
3-13. Power Block Diagram ········ 83

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram ········ 87
4-2. Printed Wiring Boards and Schematic Diagrams ········ 91
- CD-101, VC-129 (Camera 1) Boards ········ 92
- LD-63 Board ········ 100
- VC-129 (Camera, Video, Servo/System Control) Board ········ 108
- VC-129 (Video 1 (RP, RF)) Board ········ 117
- VC-129 (Video 2 (SR)) Board ········ 121
- VC-129 (Video 3 (I/O)) Board ········ 126
- FP-423, VC-129 (Servo Control (SS)) Boards ········ 129
- RE-22, RE-23, CF-33, FK-33, DB-10, VC-129 (System Control (FD)) Boards ········ 136
- AU-146, MA-164, EZ-3, JK Boards ········ 145
- VF-55, VF-56 Boards ········ 164
- DD-54, FU-111 Boards ········ 171

4-3. Semiconductor ········ 180

Section Title Page

5. EXPLODED VIEWS

5-1. Cabinet (L) and F Panel Assemblies ······ 183
5-2. Cabinet (R) Assembly ······ 184
5-3. Main Boards Assembly ······ 185
5-4. Cassette Compartment Holder Assembly ······ 186
5-5. LS Chassis Assembly ······ 187
5-6. Mechanism Chassis Assembly (1) ······ 188
5-7. Mechanism Chassis Assembly (2) ······ 189
5-8. Lens device Assembly (LSV-100A) ······ 190

6. ELECTRICAL PARTS LIST ······ 191

HARDWARE LIST ······ 213

7. CAMERA SECTION ADJUSTMENT

7-1. Preparations Before Adjustment (Camera Section) ······ 214
7-1-1. List of Service Tools ······ 214
7-1-2. Preparations ······ 216
7-1-3. Precautions ······ 217
1. Switch settings ······ 217
2. Adjusting Procedure ······ 217
3. Subject ······ 217
7-1-4. Adjusting Remote Commander ······ 218
1. Using the adjusting remote commander ······ 218
2. Precautions upon using the adjusting remote commander ······ 218
7-1-5. Page F Address List ······ 219
7-1-6. Page 6, Page 2 Address List ······ 225
1. Page 6 ······ 225
2. Page 2 ······ 226
7-1-7. Adjustment Connector ······ 226
7-1-8. Data Processing ······ 227
7-2. Camera System Adjustment ······ 228
1. Adjusting points when replacing main parts ······ 228
2. Power Supply Voltage Check (DD-54 board) ······ 228
3. Page F Data Initialization ······ 229
4. Page F Data Modification ······ 230
5. 28 MHz Origin Oscillation Adjustment (VC-129 board) ······ 231
6. V SUB Adjustment (VC-129 board) ······ 232
7. VRG Adjustment (VC-129 board) ······ 233
8. CCD Imager Correction Data Writing ······ 234
9. HALL Adjustment ······ 235
10. Flange Back Adjustment ······ 237
11. Flange Back Check ······ 238
12. SYNC Level Adjustment (VC-129 board) ······ 239
13. BURST Level Adjustment (VC-129 board) ······ 240
14. Picture Frame Setting ······ 241
15. IRIS IN/OUT Adjustment ······ 242
16. Max Gain Adjustment (VC-129 board) ······ 243
17. Pre-white Balance Adjustment ······ 244
18. Auto White Balance Reference Date Input ······ 245
19. Auto White Balance Adjustment ······ 246
20. White Balance Check ······ 247
21. Color Reproductivity Adjustment ······ 248
22. Linear Matrix Adjustment ······ 249
7-3. Electronic Viewfinder System Adjustments ······ 251
7-3-1. Horizontal Slant Adjustment ······ 251
7-3-2. Centering Adjustment ······ 251
7-3-3. Focus Adjustment ······ 251
7-3-4. Aberration Adjustment ······ 252
7-3-5. Horizontal Oscillation Frequency Adjustment (VF-55 board) ······ 252
7-3-6. Horizontal Amplitude Adjustment (VF-55 board) ······ 253
7-3-7. Vertical Amplitude Adjustment (VF-55 board) ······ 254
7-3-8. Brightness, Contrast Adjustments (VF-55, VF-56 boards) ······ 254
7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check ······ 254
7-4. Arrangement Diagram for Adjustment Parts ······ 256

8. MECHANICAL SECTION ADJUSTMENT

8-1. Operating with the Cassette Compartment Holder Assembly Removed (Refer to Fig. 8-1.) ······ 261
8-2. Tape Path Adjustment ······ 263

9. VIDEO SECTION ADJUSTMENT

9-1. Preparations Before Adjustment ······ 264
9-1-1. Equipments used ······ 264
9-1-2. Precautions Upon Adjustments ······ 264
9-1-3. How to Set the REC Mode ······ 265
9-1-4. Connector for Adjustments (CN002 of VC-129 board) ······ 265
9-1-5. Connection of Equipments ······ 266
9-1-6. Checking the Input Signals ······ 267
1. S VIDEO Input ······ 267
2. VIDEO Input ······ 267
9-1-7. Alignment Tape ······ 268
9-1-8. Output Level and Impedance ······ 269
9-1-9. Recording Mode (Normal/Hi8) Switching ······ 269
9-1-10. Service Mode ······ 270
1. Setting the Service mode ······ 270
2. Page D Write Protect ······ 273
3. Test Mode Setting ······ 273
4. Emergency code ······ 273
5. Emergency mode ······ 274
6. Bit Value Discrimination ······ 274
7. Mode Controller Input Check ······ 275
8. White Balance Mode Switching ······ 276
9. Zoom Position Check ······ 276
10. LCD, LED Check ······ 276
11. Key Input Check ······ 277
12. Key Input Check (A/D Port) ······ 277
13. Wireless Remote Commander Reception Contents Check ······ 278
14. Battery Voltage Check ······ 278
15. Mechanism Section Switch, etc. Check ······ 279
16. Mechanism Controller Input/Output Check ······ 279
17. Mechanism Controller Input Check ······ 280
18. Mechanism Controller A/D Port Input Voltage Check ······ 280
19. Tape Top/End Sensor Check ······ 281

Section Title Page

20. Individual Operations of the Drum, Capstan, and Loading Motor 281
21. Page D Address List 282
9-2. Adjusting Points when Replacing Main Parts 286
1. When Replacing Drum 286
2. When Replacing Capstan Motor 286
9-3. Power Supply System Adjustments 286
1. Oscillator Frequency Check (DD-54 board) 286
2. Power Supply Voltage Check (DD-54 board) 286
9-4. System Control System Adjustments 287
1. Page D Initial Value Input 287
2. Battery End Adjustment 288
9-5. Servo System Adjustments 289
1. Switching Position Adjustment (VC-129 board) 289
2. CAP FG Duty Adjustment (VC-129 board) 290
9-6. Video Adjustments 291
1. PB RF Equalizer fo Adjustment (VC-129 board) 292
2. Playback Frequency Characteristics Adjustment (VC-129 board) 293
3. Flying Erase Check (VC-129 board) 294
4. VXO Oscillation Frequency Check (VC-129 board) 294
5. SYNC AGC Adjustment (VC-129 board) 295
6. IR Adjustment (VC-129 board) 296
7. Chroma Comb Filter Adjustment (VC-129 board) 297
8. Emphasis Input Level Adjustment (VC-129 board) 298
9. PB Y Level Adjustment (VC-129 board) 299
10. Normal Mode Y FM Deviation Adjustment (VC-129 board) 300
11. Normal Mode Y FM Carrier Frequency Adjustment (VC-129 board) 301
12. Hi8 Mode Y FM Deviation Adjustment (VC-129 board) 302
13. Hi8 Mode Y FM Carrier Frequency Adjustment (VC-129 board) 303
14. REC Y RF Level Adjustment (VC-129 board) 304
15. Chroma Emphasis fo Adjustment (VC-129 board) 305
16. REC C RF Level Adjustment (VC-129 board) 306
17. REC C Preset Adjustment (VC-129 board) 307
18. Hi8 MP Tape REC C Level Adjustment (VC-129 board) 309
19. Normal MP Tape REC C Level Adjustment (VC-129 board) 310
20. REC ATF Level Check (VC-129 board) 311
21. Chroma Flicker Check and Adjustment (VC-129 board) 312
22. REC AFM Level Check (VC-129 board) 314
23. Chroma Comb Filter Fine Adjustment (VC-129 board) 315
24. Delay Burst Phase Adjustment (VC-129 board) 316
25. Character Generator Oscillation Frequency Adjustment (VC-129 board) 317

Section Title Page

9-7. Audio System Adjustment 318
1. 1.5 MHz Carrier Frequency Check (AU-146 board) 319
2. 1.7 MHz Carrier Frequency Check (AU-146 board) 319
3. 1.5 MHz Record Level Check (AU-146 board) 319
4. 1.7 MHz Recording Level Check (AU-146 board) 319
5. E-E Output Level Check (AU-146 board) 320
6. REC Matrix L-R Adjustment (AU-146 board) 320
7. REC Matrix L+R Check (AU-146 board) 321
8. IR Adjustment (AU-146 board) 322
9. 1.5 MHz Deviation Adjustment 322
10. 1.7 MHz Deviation Adjustment (AU-146 board) 323
11. PB Matrix L Adjustment 324
12. PB Matrix R Check 324
13. Overall Level Characteristics, Distortion Rate Check 325
14. Separation Check 325
15. Overall Noise Level Check 325
9-8. Arrangement Diagram for Adjustment Parts 326

There is the sheet for locating parts of the color reproduction standard frame and VC-129 board at the back of this manual.

SECTION 1
GENERAL

This section is extracted from instruction manual.

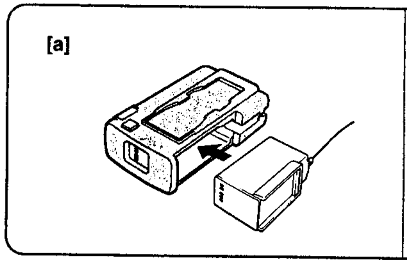
Charging and Installing the NP-500 Battery Pack

Before using your camcorder, you first need to charge and insert the supplied NP-500 battery pack. The supplied battery pack has been slightly charged when you purchase the camcorder.
You can charge the battery pack by using the supplied AC-V500 AC power adaptor with or without the supplied HSA-V500 Handycam Station. You can choose from three methods to charge the battery:

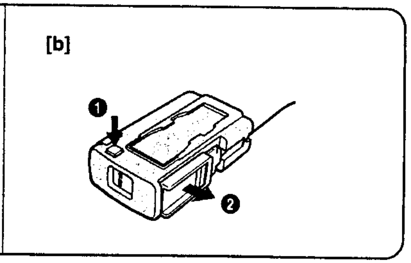
- Charge it by directly attaching it to the AC power adaptor (p.5). – To quickly charge
- Charge it by inserting it into the camcorder (p.8). – To use anytime you need
- Charge the two battery packs consecutively (p.9).

Note on the Handycam Station
You can connect your camcorder and TV or VTR more easily by using the supplied HSA-V500 Handycam Station (p.19). You can use the Handycam Station attached the AC power adaptor **[a]**.
You can also use the AC power adaptor separately. When you remove the AC power adaptor, press ADAPTOR RELEASE and pull out the AC power adaptor **[b]**. This is convenient for taking the AC power adaptor on a trip.

[a]



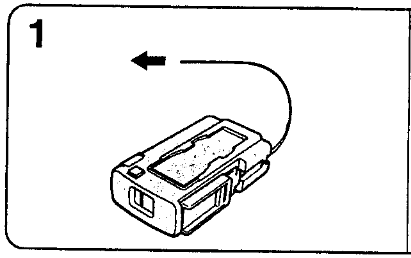
[b]



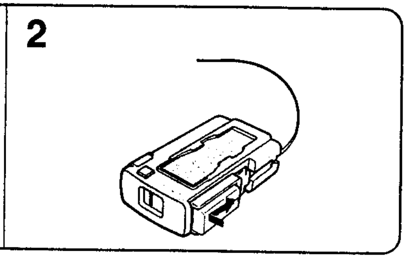
Charging with the AC Power Adaptor

You can charge the battery pack quickly. (1) Connect the AC power adaptor to a wall outlet. (2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack along the guides. The orange CHARGE lamps flash or light and charging begins. When charging is completed, the three CHARGE lamps light. (They go out after about 1 hour.) Detach the battery pack and insert it into your camcorder (p.7). You can also use the battery pack before it is completely charged. Three CHARGE lamps show the battery life. For charging time and battery life, refer to the table on the next page.

1



2



You can also charge the battery pack by using the AC power adaptor without the Handycam Station.

Charging and Installing the NP-500 Battery Pack

Charging time and battery life

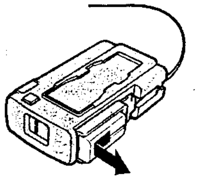
Status of CHARGE lamps	Charging time*	Battery life**
☐ F ☐ ✱ E	Start	
☐ F ☐ ■ E	30 minutes	30 minutes
☐ F ■ ■ E	50 minutes	40 minutes
■ F ■ ■ E	1 hour 30 minutes	50 minutes

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

When the three CHARGE lamps flash simultaneously
A problem may have occurred. For details, refer to the instruction manual of the AC power adaptor.

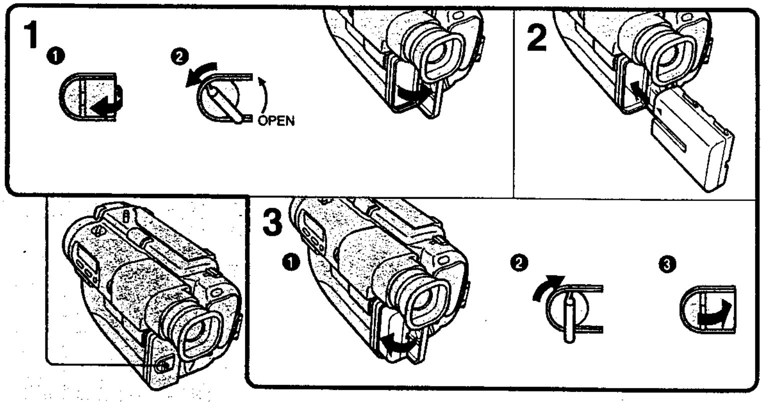
Detaching the Battery Pack

Slide the battery pack in the direction of the arrow.



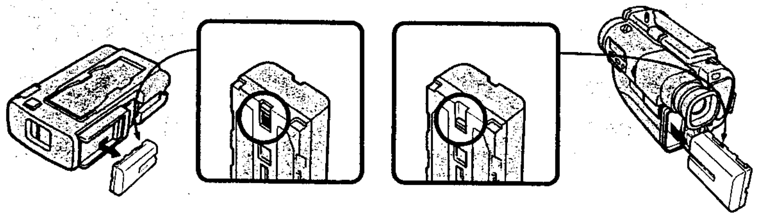
Inserting the Battery Pack into the Camcorder

(1) Turn the knob on the lid of the battery compartment. Open the lid. (2) Insert the battery pack. (3) Close the lid firmly by turning the knob.



The switch on the battery pack

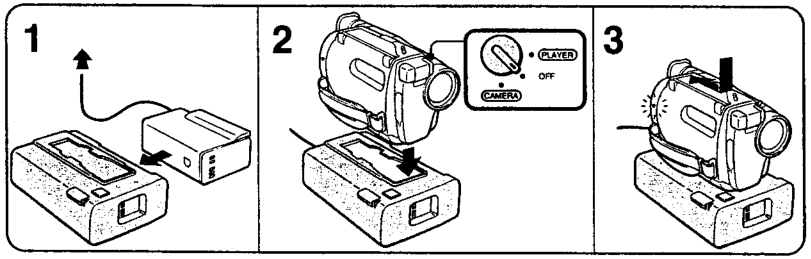
This switch is provided to help you remember the charging status of the battery. Set the switch to the "green mark" position after charging. (When detached from the AC power adaptor, the switch exposes the green mark. When detached from your camcorder, no mark is indicated.)



Charging and Installing the NP-500 Battery Pack

Charging in the Camcorder

When the camcorder is on the handycam station, the battey pack in the camcorder will be charged. It takes a longer time, but the camcorder will be able to use any time you need.
Make sure that the battery pack is inserted into your camcorder (p.7).
(1) Connect the AC power adaptor to a wall outlet. (2) Set the POWER switch to OFF. (3) Fit the camcorder to the Handycam Station.
The charge lamp on the camcorder lights and charging begins.
When charging is completed, the charge lamp on the camcorder goes out. For charging time and battery life, refer to the table below.
While charging, the camcorder may heat up. This is not cause for concern.



You can also charge by connecting the camcorder and the AC power adaptor using the supplied connecting cord (p.24).

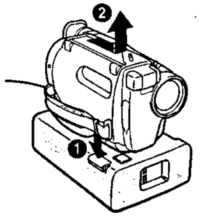
Charging time and battery life

Charging time*	Battery life**
5 hours 30 minutes	50 minutes

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

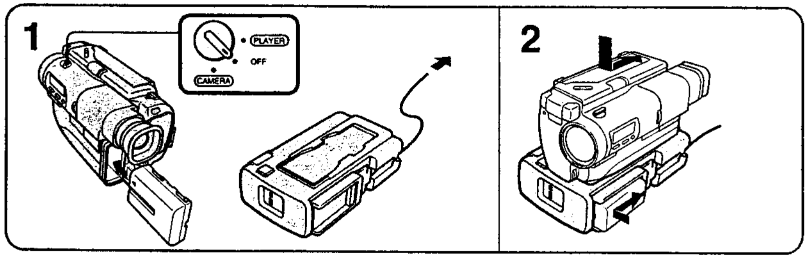
Removing the Camcorder

Press HANDYCAM RELEASE. The camcorder will unlock. Slide and lift up the camcorder.



Charging Two Battery Packs Consecutively

(1) Insert one battery pack into the camcorder (p.7). Set the POWER switch to OFF. Connect the AC power adaptor to a wall outlet. (2) Fit the camcorder to the Handycam Station. Attach another battery pack to the AC power adaptor (p.5).
The battery pack attached the AC power adaptor is charged first. Then the battery pack inside the camcorder is charged. When charging is completed, the charge lamp on the camcorder goes out following the three CHARGE lamps on the AC power adaptor went out. For charging time and battery life, refer to the table below.



You can also charge by connecting the camcorder to the AC power adaptor using the supplied connecting cord (p.24).

Charging time and battery life

Charging time*	Battery life**
8 hours	50 minutes each

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

Tips for Using the NP-500 Battery Pack

Note on Charging

Recharge the battery pack whenever you like.
You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. So recharge the battery pack before use.

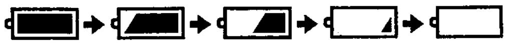
Preparing the Battery Pack

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.
"Battery life" is measured by continuous camcorder recording time, at a room temperature using a fully-charged battery. The battery is also expended when:
- You insert or eject a tape.
- The camcorder is set to Standby mode.
- You set the POWER switch to PLAYER.

Battery life is shortened in a cold environment.
Battery efficiency is decreased and the battery wears out more quickly in cold weather, below 50°F (10°C).

Battery Remaining Indicator

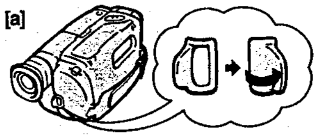
You can check the remaining battery capacity by looking at the ▬ indicator in the viewfinder. The decreasing black bar indicates decreasing battery power.



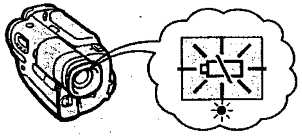
To save battery power close the STANDBY cover when not recording.
A smooth recording can be made even if recording is stopped and started again. [a]

When to Replace the Battery Pack
You can check the remaining battery capacity by looking at the battery remaining indicator in the viewfinder. When the ▭ indicator and the battery lamp in the viewfinder change from slow to rapid flashing, replace the battery pack. Set the POWER switch to OFF, and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth transition when you begin recording again. [b]

[a]



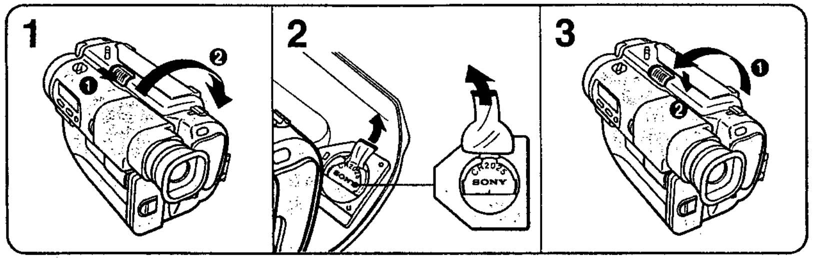
[b]



Setting the Date and Time

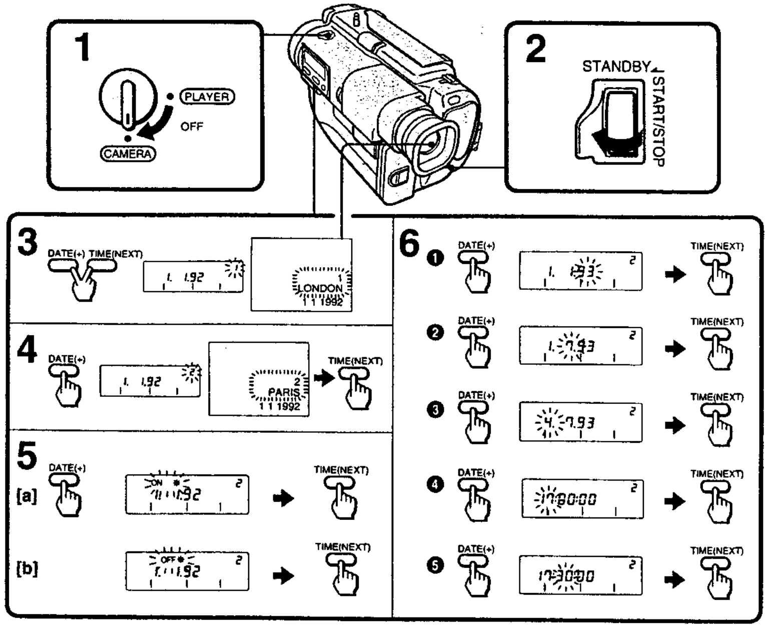
Installing the Lithium Battery

To activate the clock and the world clock, you must first install a lithium battery. (1) Slide the cover lock and open the cassette compartment cover. (2) Pull out the film in the battery compartment. (3) Close the cover and press the top the cover to lock it.



Setting the Date and Time

Before setting the clock, make sure a power source and lithium battery are installed. (1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Press DATE (+) and TIME (NEXT) simultaneously until the area name and number flash in the viewfinder. (4) Press DATE (+) to set your home area. (5) Set the Time: **[a]** For summer time, press DATE (+) then press TIME (NEXT), **[b]** For standard time, press TIME (NEXT).
(6) Adjust the flashing digits for the year, month, day and hour by pressing DATE (+) and TIME (NEXT). To set the year to 1992, there is no need to press DATE (+) in 6-①. Note that when you keep DATE (+) pressed, the digits advance faster.



Time Zones and Area Numbers and Names

Countries	Area name	Area number
The United Kingdom and Portugal (GMT)	LONDON	1
Other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

To Correct the Date and Time Setting

Repeat steps 3 to 6.

To Check the Preset Date and Time

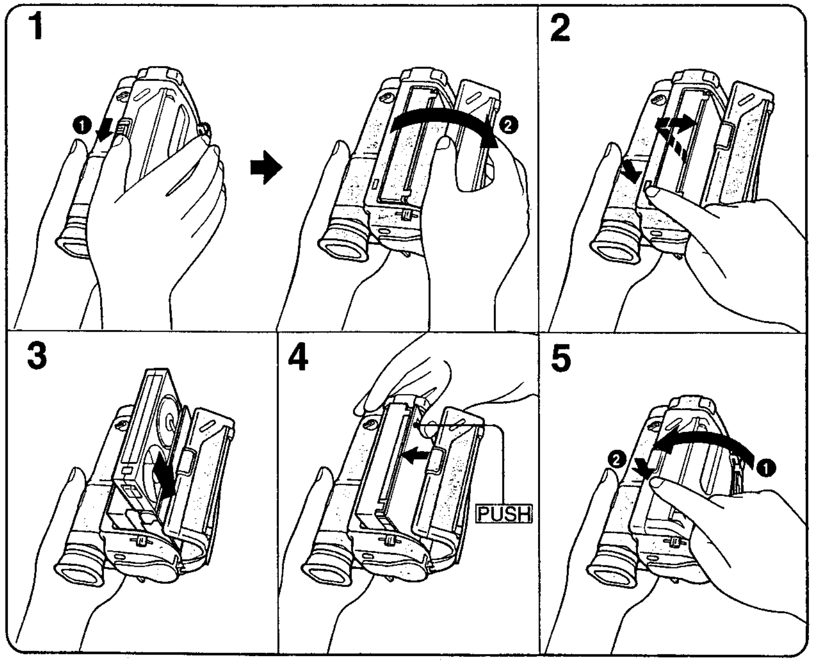
Press DATE (+) to display the date indicator in the viewfinder and the display window. Press TIME (NEXT) to display the time indicator. When you press the same button again, the indicator goes out.

To Reset to Standard Time

Change the SUMMER TIME mode setting in the menu system (p.30).

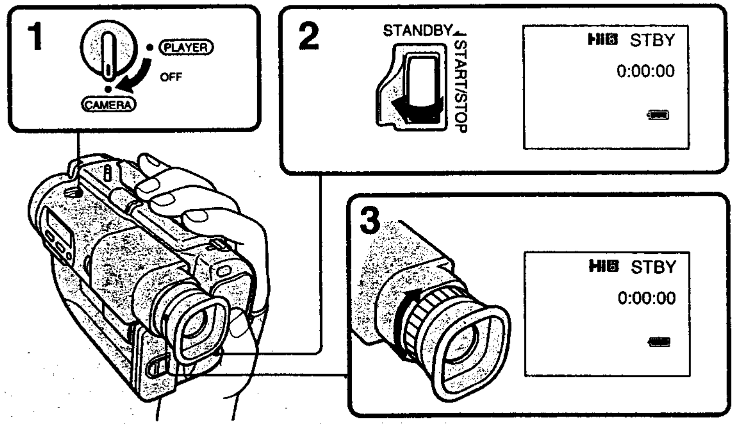
Inserting a Cassette

Make sure that a power source is installed. (1) Slide the cover lock and open the cassette compartment cover. (2) Press EJECT. The cassette compartment automatically lifts up and opens. (3) Insert a cassette (not supplied) with the window facing out. (4) Press the PUSH mark on the cassette compartment to close it.
(5) Close the cover and press the top of the cover to lock it.
To eject the cassette, press EJECT.



Adjusting the Viewfinder Lens

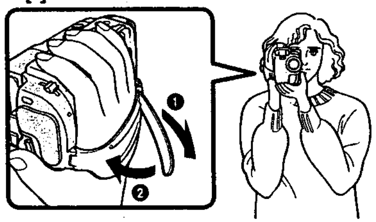
Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is connected to the camcorder.
(1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Turn the viewfinder lens adjustment ring so that the "STBY" indicator in the viewfinder comes into sharp focus.



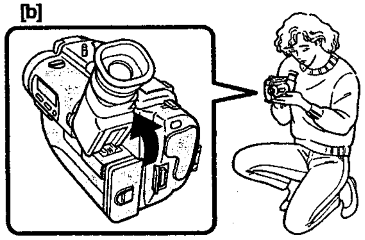
Hints for Better Shooting

For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:

[a]



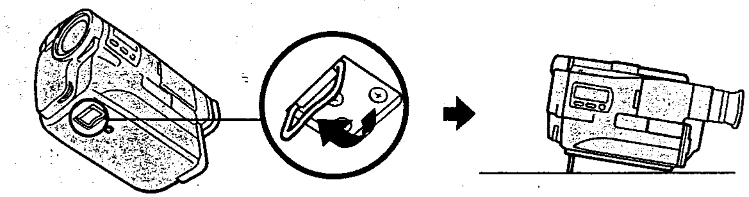
[b]



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]**
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]**

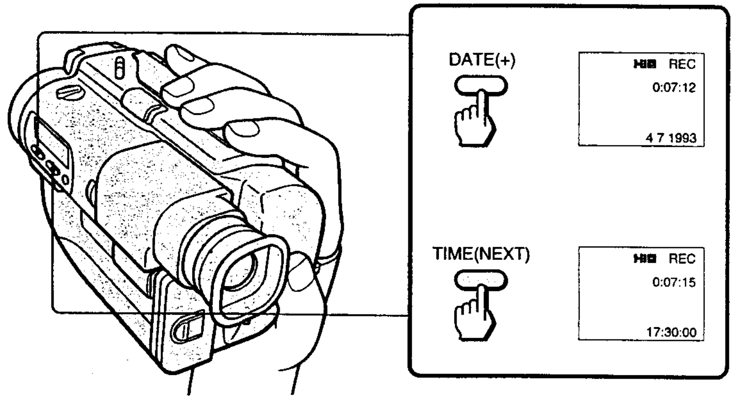
Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p.43). Make sure the tripod screw is shorter than 6.5mm (9/32 in).

Use the instant stand
Lift up the stand at the bottom of the camcorder. Do not attach a shoulder strap to the stand.



Recording the Date or Time

In CAMERA mode, press DATE (+) or TIME (NEXT). You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.

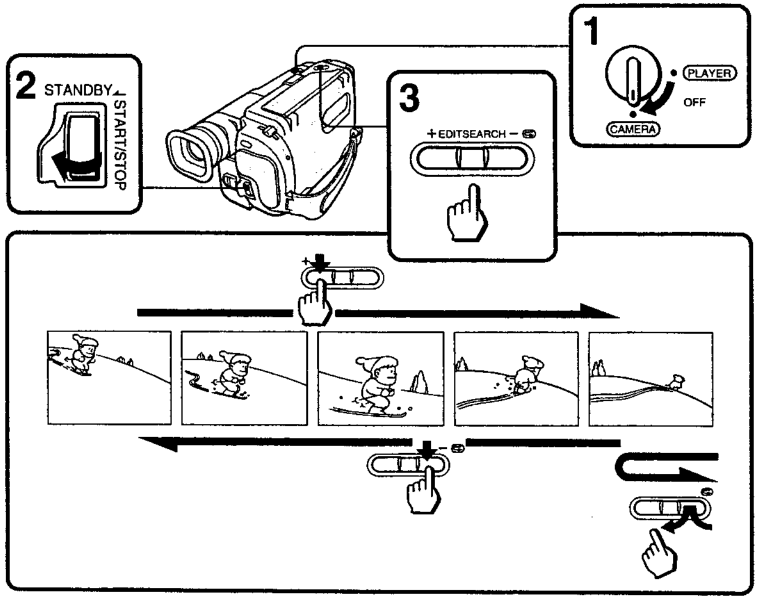


To Stop Recording with the Date or Time

Press DATE (+) or TIME (NEXT) again. Recording continues.

Checking the Recorded Picture in the Viewfinder

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder. (1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Press EDITSEARCH. Press the – (⊜) side momentarily, the last few seconds of the recorded portion plays back **(Rec Review)**.
Keep pressing EDITSEARCH to play back the last recorded portion **(Edit Search)**.
+ side: to view the forward playback picture
– side: to view the reverse playback picture



Monitoring the Sound While Viewing the Playback Picture in the Viewfinder

Connect headphones (not supplied) to the PHONES jack. Play back the tape in PLAYER mode (p.22).

To Stop Playback

Release EDITSEARCH.

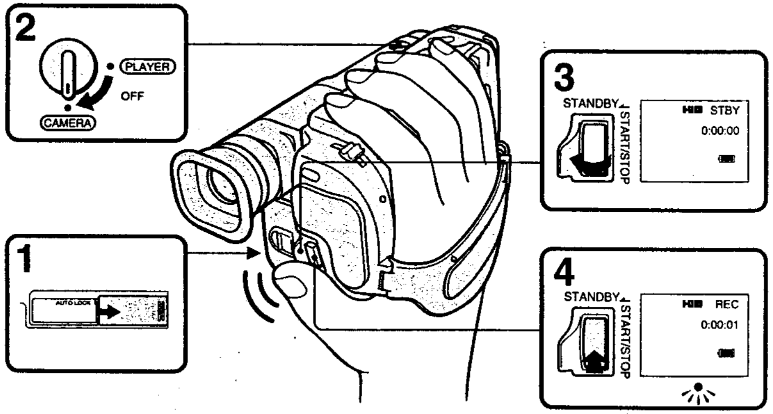
To Begin Re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

Basic Operation

Camera Recording

Make sure that a power source is installed and a cassette is inserted. Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly. (1) Close the AUTO LOCK cover for automatic adjustment (p.25). (2) Set the POWER switch to CAMERA. (3) Open the STANDBY cover. (4) Press START/STOP. The camcorder starts recording and the "REC" indicator will appear in the viewfinder.
You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system (p.30) according to the length of your planned recording before you start recording.



To Stop Recording Momentarily

Press START/STOP again. The "STBY" indicator appears in the viewfinder **(Standby mode)**.

To Finish Recording

Close the STANDBY cover and set the POWER switch to OFF.
Then, eject the tape (p.12).

Note on Standby mode
If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, close the STANDBY cover once and open it again. To start recording, press START/STOP.

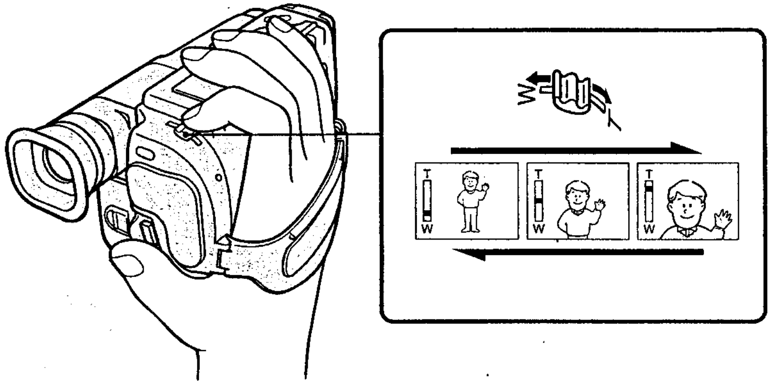
Note on recording
When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape.

Note on the tape counter
The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press RESET located below the display window.

Recording mode
This camcorder records in the SP mode (approximately 20.051 mm/second) and in the LP mode (approximately 10.058 mm/second) and can play back in the SP mode and LP mode. The quality of the playback picture in the LP mode, however, will not as good as that in the SP mode.

Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. You can also use the zoom to focus manually or to decide on a shooting angle before you start recording. For more professional-looking recordings, use the zoom sparingly.
T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)



Zooming Speed
Slide the power zoom lever firmly for a high-speed zoom. Slide it softly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom
If you cannot get a sharp focus while in extreme telephoto zoom, slide the W side of the power zoom lever until the focus is sharp.
You can shoot a subject that is at least 90 cm (about 3 feet) away from the lens surface in the telephoto position, or 1cm (about 1/2 inches) in the wide-angle position.

Manual focusing in macro
You can also shoot with manual focus while doing close-ups (p.26).

Connections for Playback

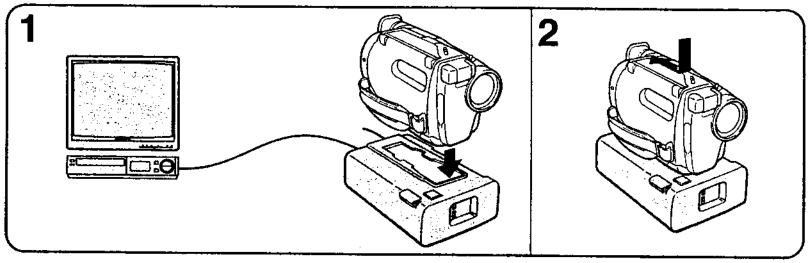
You can use this camcorder as a VTR by connecting it to your TV for playback. There are three ways to connect your camcorder.
- Connecting to a TV or VTR using the Handycam Station (p.19)
- Connecting to a TV with Video/Audio input jacks or a VTR (p.20)
- Connecting to a TV without Video/Audio input jacks (p.21)

Connecting to a TV or VTR Using the Handycam Station

After you've connected the supplied HSA-500 Handycam Station, you can view the playback picture on a TV easily.

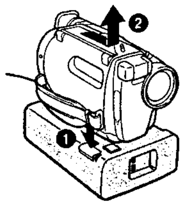
To Fit the Camcorder to the Handycam Station

For details of the connection, see the instruction manual for the Handycam Station. (1) Place the camcorder into the Handycam Station. (2) Slide the camcorder along the guides to fit it in.



To Remove the Camcorder

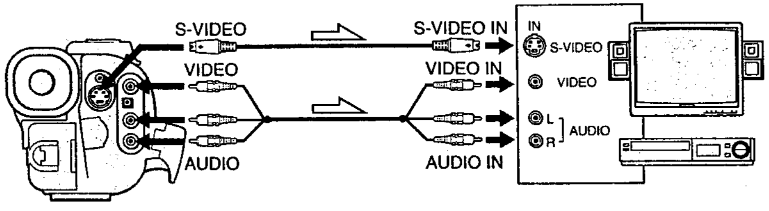
Press HANDYCAM RELEASE on the Handycam Station. Slide and lift up the camcorder.



Connections for Playback

Connecting to a TV with Video/Audio Input Jacks or a VTR

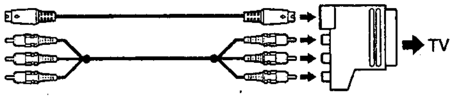
Connect the camcorder to your TV by using the supplied connecting cable. Set the TV/VTR selector to VTR on the TV. When Connecting the camcorder to VTR, set the input selector on the VTR to LINE.



:Signal flow

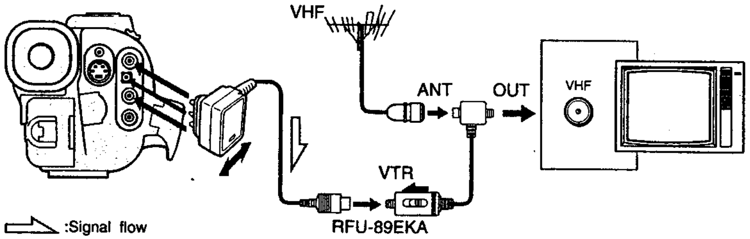
If your TV or VTR is a monaural type, connect only the white plug for audio on both the camcorder and the TV or the VTR. With this connection, the sound is in monaural.
If you are going to connect the camcorder using the S video cable, you do not need to connect the yellow (video) plug of the A/V connecting cable.

If your TV has a 21-pin connector (EUROCONNECTOR)
Use the supplied 21-pin adaptor.



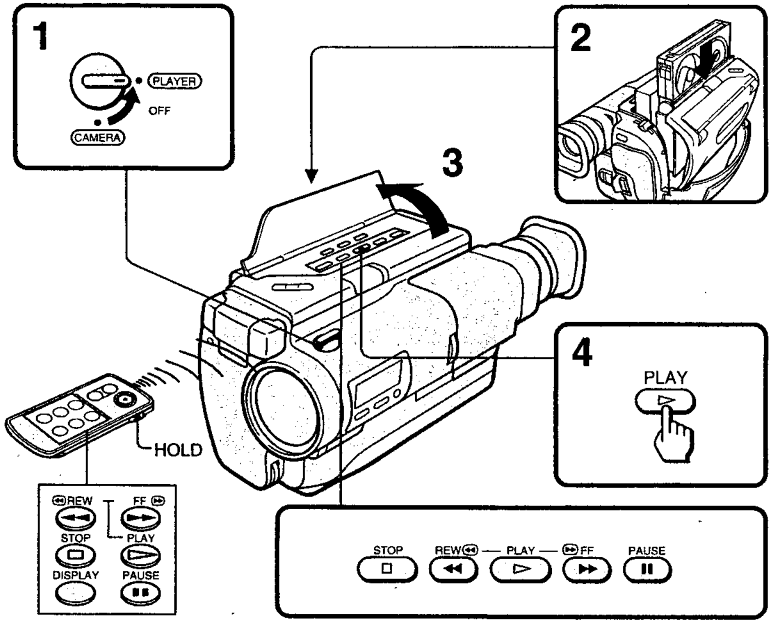
Connecting to a TV without Video/Audio Input Jacks

Connect the camcorder to the TV using an appropriate RFU adaptor such as the RFU-89EKA (not supplied). For details on connection, refer to the instruction manual of the RFU adaptor. The following illustrates the connection of the RFU-89EKA as an example.


VHF
ANT
OUT
VHF
VTR
RFU-89EKA
:Signal flow

Playing Back a Tape

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/VTR (p.19). You can control playback using the supplied Remote Commander (p.45). Before using the Commander, slide the HOLD switch in the direction opposite to the arrow. (1) Set the POWER switch to PLAYER. (2) Insert the recorded tape with the window facing out. (3) Open the lid of the control panel. (4) Press ▷. Playback starts.


1
PLAYER
OFF
CAMERA
2
3
4
PLAY
HOLD
REW
FF
STOP
PLAY
DISPLAY
PAUSE
STOP
REW
PLAY
FF
PAUSE

To stop playback, press □.
To rewind the tape, press ◀◀.
To advance the tape rapidly, press ▶▶.

Various Playback Modes

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To locate a scene (picture search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture in a sequence of stop-motion images
Press EDITSEARCH in playback pause mode. If you keep pressing EDITSEARCH, you can view the picture playback in the forward (+) or reverse (–) direction.

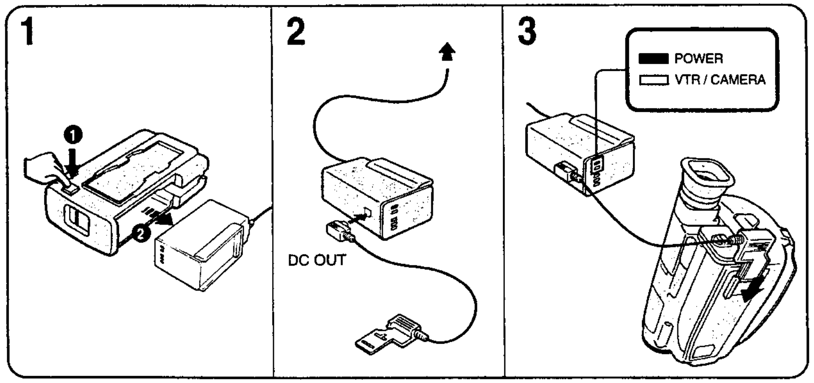
Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

To select the monitor sound
Change the "Hi-Fi SOUND" mode setting in the menu system (p.30).

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander.
To erase the indicators, press DISPLAY again.

Using House Current

You can use alternative power sources: house current and the NP-500 battery pack. This section describes using house current. Use the supplied AC-V500 AC power adaptor. (1) Remove the AC power adaptor from the Handycam Station. Press ADAPTOR RELEASE and pull out the AC power adaptor. (2) Connect the power cord to a wall outlet, and connect the supplied connecting cord to the DC OUT jack on the AC power adaptor. (3) Insert the connecting plate into the guides at the bottom of the camcorder. The orange VTR/ CAMERA lamp lights while the camcorder is operating.



Note on the instant stand
Do not use the instant stand (p.14) when you connect the connecting cord to the camcorder. The connecting plate will be stressed that may cause a malfunction, and the camcorder will be unstable.

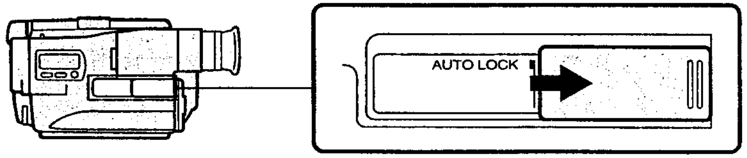
Caution
To prevent accident from a short circuit, do not come into contact with the terminals inside the shutter at the bottom of the camcorder.

Selecting Automatic or Manual Adjustment Modes

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording.

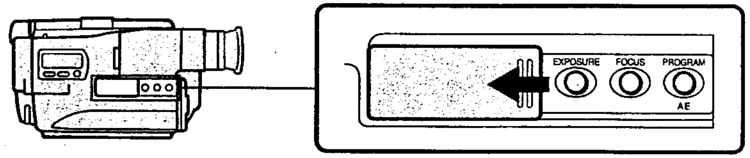
Automatic Adjustment Mode

Close the AUTO LOCK cover. In AUTO LOCK mode, the camcorder adjusts the focus and exposure automatically. It also sets the shutter speed to 1/50.



Manual Adjustment Mode

Open the AUTO LOCK cover. In manual mode, you can adjust the focus and the exposure manually, and select from three PROGRAM AE modes to fit the shooting situation.
Even if in manual mode, the settings you didn't adjust manualy remain the same as when in automatic adjustment mode.



About the previous settings
Manual settings are saved in the following case:

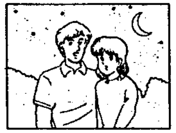
- When you resume automatic mode after you make manual adjustments and then select manual mode again.
- When you set the POWER switch to OFF

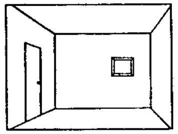
However, manual settings are cancelled if more than 5 minutes pass after you have detached the battery.

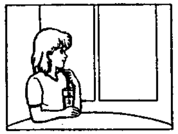
Focusing Manually

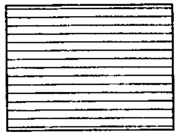
When to Use Manual Focus

Use manual focus under the following conditions:


[a]


[b]


[c]


[d]

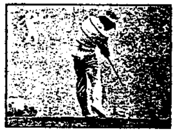
- Insufficient light **[a]**
- Subjects with little contrast – walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

Using the PROGRAM AE Function

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a Portrait effect (the subject is in focus and the background is out of focus) or capture high-speed action with Sports mode or High-Speed Shutter mode.

Selecting the Best Mode

Select the best mode by using the following examples.



Portrait mode

- A still subject such as a person or flower
- Subject behind an obstacle such as a net
- Zooming in on a subject in telephoto

Sports mode

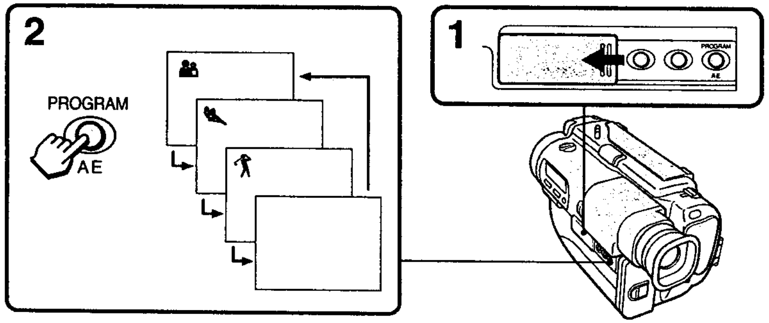
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode

- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Using the PROGRAM AE Function

(1) Open the AUTO LOCK cover. (2) Press PROGRAM AE repeatedly so that the desired mode indicator appears inside the viewfinder.

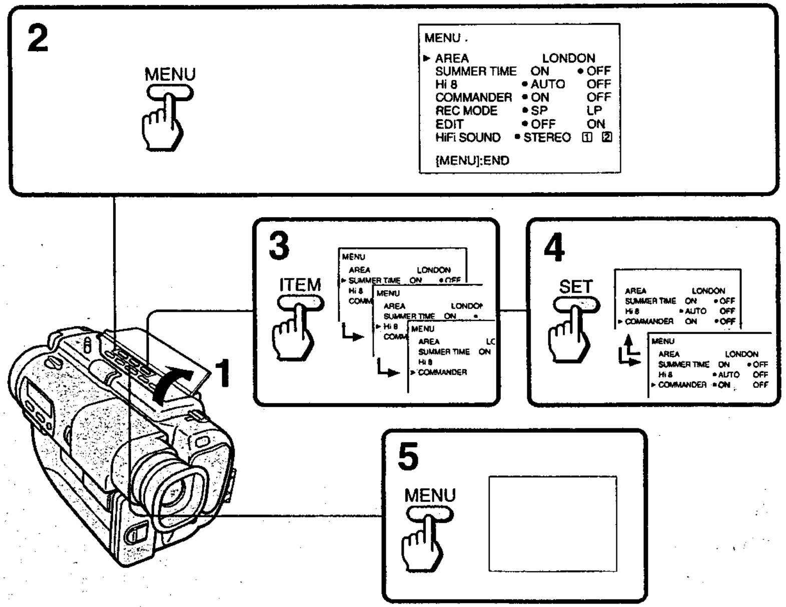


Note on shutter speed

The shutter speed in each PROGRAM AE mode is as follows:
Portrait mode – between 1/50 to 1/2000
Sports mode – between 1/50 to 1/500
High-speed shutter mode – 1/4000

Changing the Mode Settings

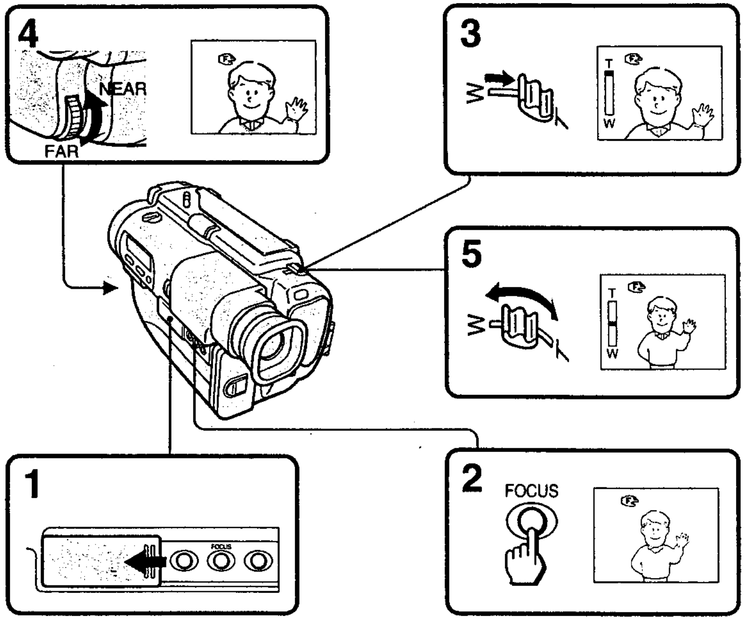
You can change the mode settings in the menu system to further enjoy the features and functions.
(1) Open the lid of the control panel. (2) Press MENU to display the menu in the viewfinder. (3) Press ITEM to move the cursor ▶ and select the desired item. (4) Press SET to move the cursor ● and set the desired mode. If you want to change the other modes, repeat steps 3 and 4. (5) Press MENU to erase the menu display.



```
MENU .
▶ AREA              LONDON
  SUMMER TIME   ON      ● OFF
  Hi 8        ● AUTO      OFF
  COMMANDER   ● ON        OFF
  REC MODE    ● SP        LP
  EDIT        ● OFF       ON
  HiFi SOUND  ● STEREO  1  2
[MENU]:END
```

Focusing Manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length. (1) Open the AUTO LOCK cover. (2) Press FOCUS. The Ⓕ indicator appears in the viewfinder. (3) Keep the power zoom lever to the T side until the zooming stops. (4) Turn the focus dial to adjust the focus. (5) Set the desired shot length.



To Reactivate Auto Focusing

Press FOCUS again, or close the AUTO LOCK cover. The Ⓕ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide angles after focusing in telephoto.

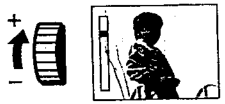
Note on the focus dial
The focus dial does not have a stop position.

Adjusting the Exposure

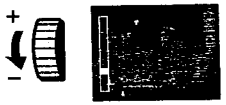
When to Adjust the Exposure

Adjust the exposure manually under the following cases.

[a]



[b]

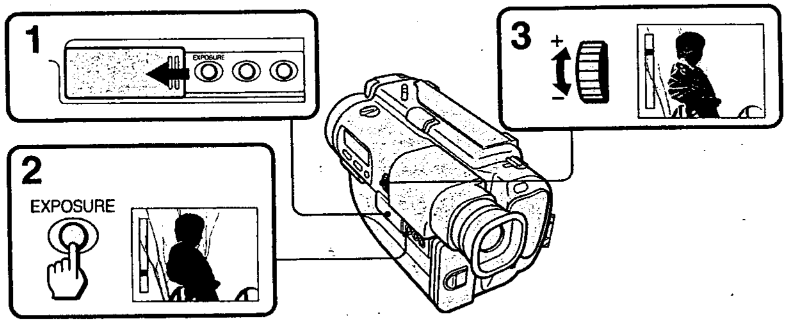


[a] Turn the Exposure dial to + when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the Exposure dial to – when:
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the Exposure

(1) Open the AUTO LOCK cover. (2) Press EXPOSURE. The exposure indicator appears in the viewfinder and the exposure is locked at the actual brightness. (3) Turn the EXPOSURE dial to adjust exposure. The exposure is locked at the adjusted brightness.



To Return to Automatic Exposure Mode

Press EXPOSURE again, or close the AUTO LOCK cover.

Shoot with the sun behind you
When the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shoot in the dark
We recommend you to use the video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Selecting the Mode Setting of Each Item

AREA
You cannot select this item before setting the date and time (p.10).
- Select the area name of the time zone where you will use the camcorder when you use the world clock (p.32).

SUMMER TIME <ON/OFF>
You cannot select this item before setting the date and time (p.10).
- Select ON to set the clock to summer time.
- Select OFF to set to standard time.

Hi8 <AUTO/OFF>
- Select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8 mm) depending upon cassette type being used.
- Select OFF to record a Hi8 tape in standard 8 mm format. See page 35 for details about cassette types.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander for the camcorder.

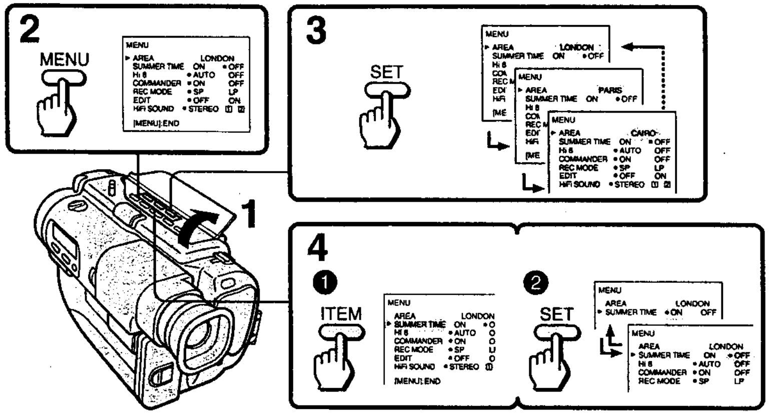
REC MODE <SP/LP>
- Select SP to record a tape in the SP (stadard play) mode.
- Select LP to record in the LP (long play) mode.

EDIT <ON/OFF>
In CAMERA mode, this option is not displayed.
- Select ON to minimize the picture and sound deteriorations when editing.
- Select OFF otherwise.

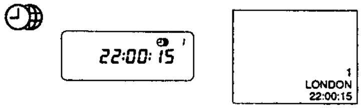
HIFI SOUND <STEREO / 1 / 2 >
In CAMERA mode, this option is not displayed.
- Normally select STEREO.
- Select 1 or 2 to play back a dual soundtrack tape.

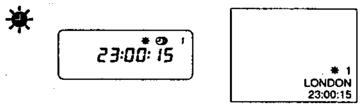
Using the World Clock

Before using the world clock, you need to set the date and time in your home area (p.10). Reset the clock according to the local time zone by setting AREA and SUMMER TIME modes in the menu system. First find the area name in the "Time zone chart" on page 33. (1) Open the lid to the control panel. (2) Press MENU to display the menu. (3) Press SET to select the area name where you will use the camcorder. (4) Press ITEM to select SUMMER TIME item. Press SET to select ON: for summer time or OFF: for standard time.


2
MENU
MENU
▸ AREA LONDON
SUMMER TIME ON •OFF
Hi 8 •AUTO OFF
COMMANDER •ON OFF
REC MODE •SP LP
EDIT •OFF ON
HiFi SOUND •STEREO 1 2
[MENU]:END
3
SET
▸ AREA LONDON
▸ AREA PARIS
▸ AREA CAIRO
1
4
❶
ITEM
▸ SUMMER TIME ON •OFF
❷
SET
▸ SUMMER TIME •ON OFF

The ⊕ indicator appears in the display window and the area name appears in the viewfinder when using the world clock. The ✱ indicator appears in the display window and the viewfinder when setting to summer time.

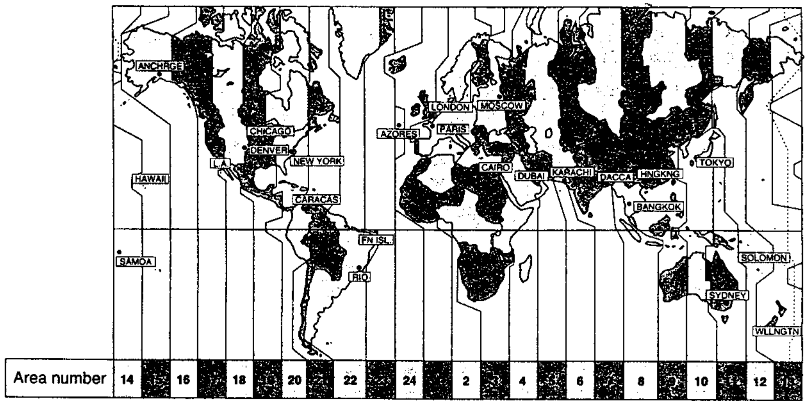

22:00:15
1
LONDON
22:00:15


✱
23:00:15
✱ 1
LONDON
23:00:15

To Check the Date
Press DATE (+). To turn off the date indicator, press DATE (+) again.

To Reset to Your Home Area Time
Reset the AREA mode in the menu system to your home area name.

Time Zone Chart



Area number	Area name	Nations or area*
1	LONDON	England, GMT (Greenwich Mean Time), Portugal
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Swizerland
3	CAIRO	Egypte, Greece, Israel, Turkey
4	MOSCOW	Iraq, Kenya, Saudi Arabia, former U.S.S.R. (west)
5	DUBAI	United Arab Emirates
6	KARACHI	Moidives, Pakistan
7	DACCA	Bangladesh, India, Myanmar
8	BANGKOK	Cambodia, Indonesie (Jakarta), Thailande, Vietnam
9	HNGKNG	Australia (west), Chine, Hong Kong, Indonesia (Bali, Borneo), Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (east), Guam, Saipan
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii I., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	Mexico, U.S.A. (Chicago), CST (Central Standard Time)
20	NEWYORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C.), EST (East Standard Time)
21	CARACAS	Chili, Venezuela
22	RIO	Argentina, Brazil
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

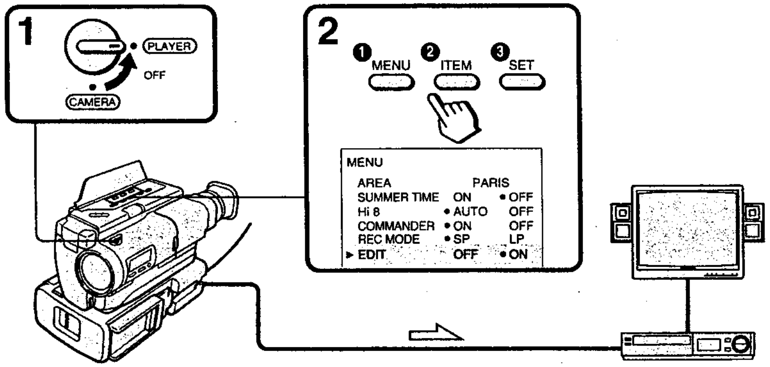
* These are common names. They may be different from formal country names.

Editing onto Another Tape

You can create your own video programme by editing with any other 8 mm, Hi8 Hi8, Betamax, VHS VHS, S-VHS S-VHS, VHSC VHSC, or S-VHSC S-VHSC VTR that has video/audio inputs.

Before Editing

After fitting the camcorder to the Handycam Station that is connected to your VTR, (1) Set the POWER switch to PLAYER, (2) Set EDIT mode to On in the menu system (p.30).



```
MENU
  AREA              PARIS
  SUMMER TIME   ON     • OFF
  Hi 8         • AUTO    OFF
  COMMANDER    • ON      OFF
  REC MODE     • SP      LP
► EDIT           OFF   • ON
```

⇨ :Signal flow

Starting Editing

(1) Insert a blank tape (or a tape you want to record over) into the recording VTR. Then insert your recorded tape into the camcorder. (2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then set the camcorder to playback pause mode. (3) Set the recording VTR to recording pause mode. (4) Press ▮▮ on the camcorder and VTR simultaneously to start editing.

To Edit More Scenes

Repeat steps 2 to 4.

To Stop Editing

Press ☐ STOP on the camcorder and VTR. When you finish editing, reset EDIT mode to OFF (p.30).

Use of the EDITSEARCH button

To play back a tape in the forward or reverse direction keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Note on DISPLAY function

If you have displayed the viewfinder screen indicators on the TV (DISPLAY function), erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Usable Cassettes and Recording/Playback Modes

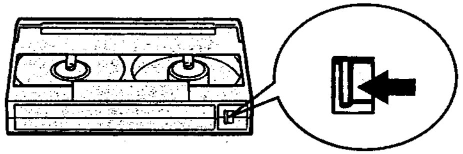
Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures. You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape in the standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm recording system, set the Hi8 mode to OFF in the menu system befor recording (p.30).

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	Hi8	AUTO
Standard 8	Hi8	OFF
	8	AUTO (or OFF)

To Prevent Accidental Erasure

Slide the tab on the cassette to expose the red mark.



If you try to record with the red mark exposed, the ▭ and ▲ indicators flash in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide the tab back out to cover the red mark.

When You Play Back

The playback mode is selected automatically according to the recording system (Hi8/standard 8 mm, SP/LP mode) in which the tape was recorded.

Notes on AFM Hi-Fi stereo
When you play back the tape, the sound is in monaural if:

- You record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- You record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

Recording mode
When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

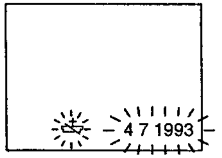
Changing the Lithium Batteries

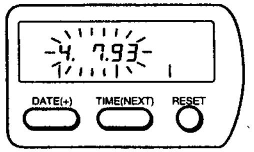
Lithium Battery Life

The lithium battery for the camcorder lasts for about 1 year under normal operation. When the battery becomes weak or dead, the date or time indicator keeps flashing in the display window and ⊖ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA.

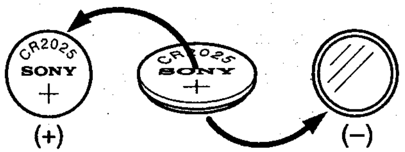
The lithium battery for the Remote Commander lasts about 6 months under normal operation. When the battery becomes weak or dead, the Commander does not work.

In either cases, **replace the battery with the Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.**





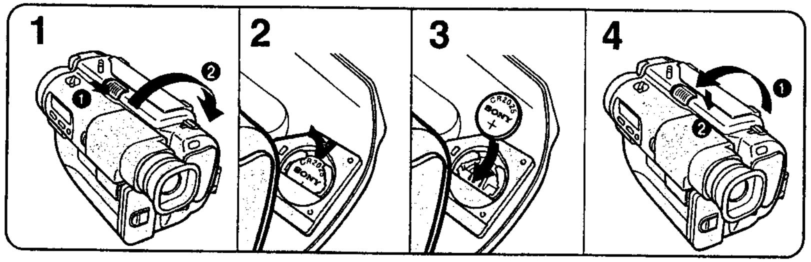
Note that the lithium battery has a positive (+) and a negative (–) terminal as illustrated. **Be sure to install the lithium battery so that terminals on the battery match the terminals on the camcorder or the Remote Commander.**



Changing the Lithium Battery in the Camcorder

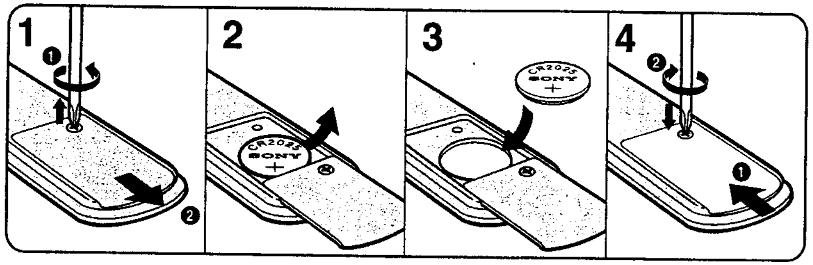
While replacing the battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time.

(1) Unfasten the grip belt (p.14). Open the cassette compartment cover. (2) Push the battery down once and pull it out from the lithium battery holder inside the cover. (3) Install a new battery with the positive (+) terminal facing up. (4) Close the cassette compartment cover.



Changing the Lithium Battery in the Remote Commander

(1) Unfasten the screw at the back of the Commander and open the lithium battery holder. (2) Remove the lithium battery. (3) Insert a new battery with the positive (+) terminal facing up. (4) Close the holder. Fasten the screw.



Cautions

- Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.
- Do not hold the battery with the metallic tweezers, otherwise a short-circuit may occur.
- The Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Maintenance Information and Precautions

Moisture Condensation

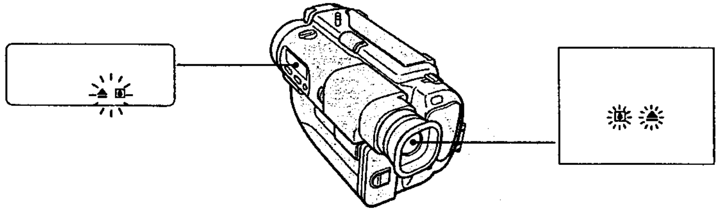
If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. If this happens, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

When ▣ and ⏏ indicators flash in the viewfinder and the display window, moisture has condensed inside the camcorder. If this happens, none of the functions except cassette ejection will work.

Eject the tape, turn off the camcorder, and leave it with the cassette compartment open for about 1 hour.

If the ▣ indicator does not light up when you turn on the power, you can use the camcorder again.



On the Surface of the Tape

If there is moisture on the surface of the tape, when you insert tape and press a tape transport button, the ⏏ indicator flashes in the viewfinder and the display window. If this happens, none of the functions except cassette ejection will work.

Eject the tape and let it sit for about 1 hour.

If the ⏏ indicator does not light up when you insert the tape and press a tape transport button, you can use the camcorder again.

On the Lens

No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

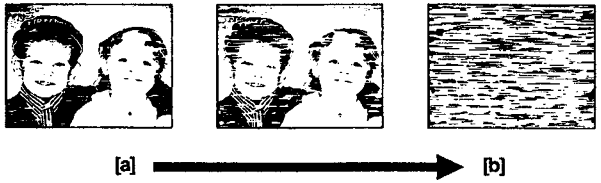
How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

1 Be sure to tightly seal the plastic bag containing the camcorder.
2 Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about one hour).

Video Head Cleaning

To ensure clear pictures, clean the video heads periodically. When playback pictures are "noisy" or hardly visible, the video heads may be contaminated.



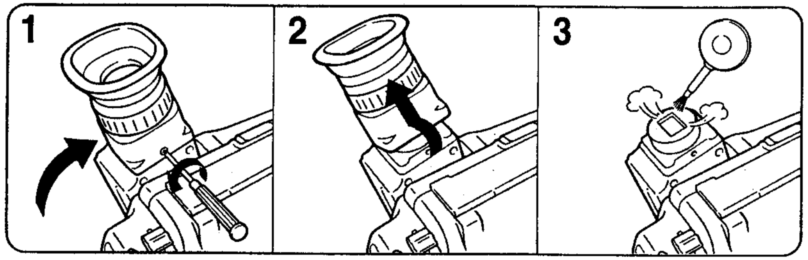
[a] Slight contamination
[b] Critical contamination
If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Removing Dust from Inside the Viewfinder

(1) Turn the viewfinder up. Unfasten the screw at the side of the viewfinder using a precision screwdriver (not supplied). (2) Turn the viewfinder to the outside and pull it out. (3) Clean the surface of the screen with a commercially available blower.



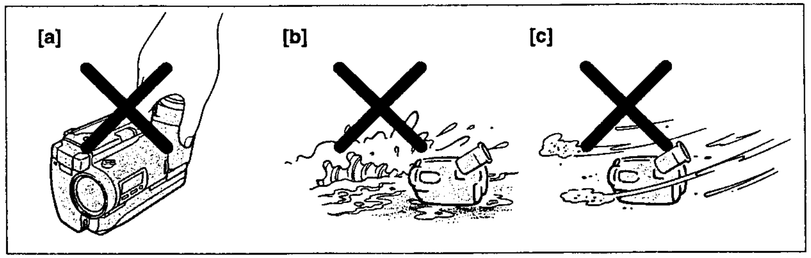
To Reattach the Viewfinder
Push in the viewfinder until it clicks and fasten the screw.

Maintenance Information and Precautions

Precautions

On Operation

- Operate the camcorder using 7.2 V (battery pack), or 6.5 V (AC power adaptor).
- For DC or AC operation, use only the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not pick up the camcorder by the viewfinder. [a]
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction and sometimes the malfunction cannot be repaired. [b]**
- **Do not let the camcorder get wet. Keep the camcorder from rain or sea water. It may cause a malfunction and sometimes the malfunction cannot be repaired.[c]**



On Handling Tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape, or if the tab is out or in.

On Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Using Your Camcorder Abroad

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 100 V to 240 V AC, 50/60 Hz. If you cannot attach the power adaptor to the wall outlet, use a power cord plug adaptor (not supplied).

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV or a SECAM system-based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

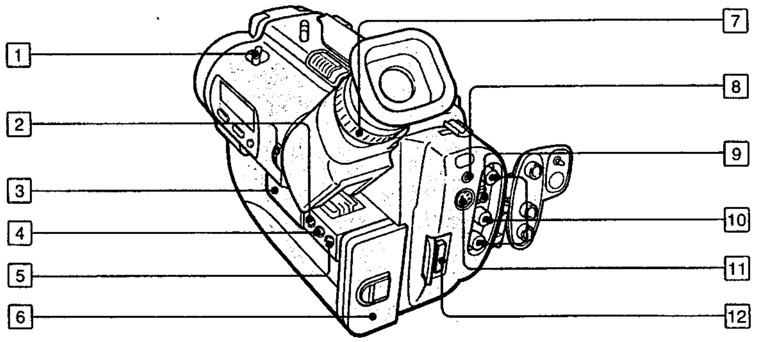
PAL M system country
Brazil

PAL N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

Identifying the Parts



1 **POWER switch** (p.15, 22)
CAMERA: for camera recording
PLAYER: for playing back tape
OFF: power off

2 **EXPOSURE button and EXPOSURE dial** (p.28)
Press EXPOSURE to lock the exposure at the actual brightness. To adjust the exposure manually, press this button and turn the EXPOSURE dial as follows:
Upward: to get the exposure brighter
Downward: to get the exposure darker

3 **AUTO LOCK cover** (p.15, 25)
When you close it (set to AUTO LOCK), the camcorder adjusts the focus and exposure automatically and sets the shutter speed at 1/50 seconds.
When you open it, you can adjust the focus and exposure manually. You can also use the PROGRAM AE function.

4 **FOCUS button** (p.27)
Press it to set the camcorder in manual focus mode.

5 **PROGRAM AE button** (p.29)
Press to select from three PROGRAM AE modes (Portrait / Sports / High-Speed Shutter mode) to fit the shooting situation.

6 **Battery compartment** (p.7)
Insert the supplied Battery Pack NP-500 here.

7 **Viewfinder lens adjustment ring** (p.13)
To focus the viewfinder lens, turn this ring until the indicator in the viewfinder comes into sharp focus.

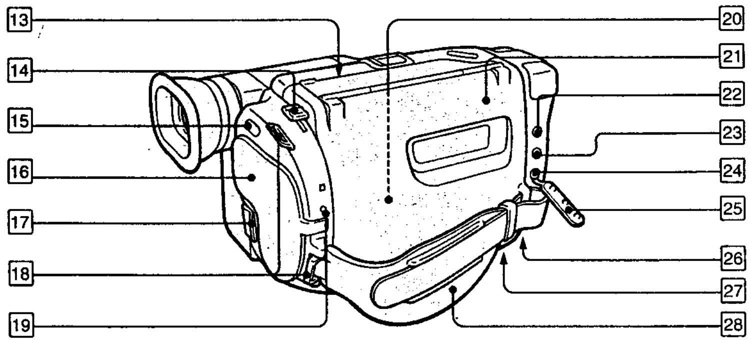
8 **REMOTE ⓛ (LANC) control jack**
Connect the LANC ⓛ connecting cable to a wired remote control unit such as a editing controller. In this case, set the REMOTE COMMANDER mode to OFF in the menu system (p.30).
ⓛ stands for Local Application Control Bus System. The ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

9 **RFU DC OUT (RFU adaptor DC output) jack** (p.21)
To view the recorded picture on the TV that has only an aerial input, connect the RFU adaptor (not supplied) here.

10 **VIDEO/AUDIO jacks** (p.20)
These jacks work as output jack.
To view the recorded picture on the TV or to rerecord onto another tape, connect these jacks and the VIDEO/AUDIO input jacks on the TV or VTR using the A/V connecting cable (supplied).

11 **S VIDEO jack (4-pin mini-DIN connector)** (p.20)
You can get a clearer picture if your TV or VTR has an S video jack. Connect to these jacks using the S video connecting cable (supplied).
This jack works as output jack.
To view the recorded picture on the TV or to rerecord onto another tape, connect this jack and the S video input jack on the TV or VTR.

12 **START/STOP button** (p.15)
To start recording, press it after setting the POWER switch to CAMERA and opening the STANDBY cover.
To stop recording momentarily, press it again.



13 **EJECT button (below the cover)** (p.12)
Press it to insert a cassette into the cassette compartment or to eject the cassette.

14 **POWER ZOOM lever** (p.16)
Slide to change the size of the subject in the scene.
T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)

15 **Rear remote sensor** (p.45)
Aim the Remote Commander here for remote control.

16 **Jack cover**

17 **STANDBY cover** (p.15)
To set the camcorder to CAMERA Standby mode (recording standby mode), open it.
To stop recording or to prevent from accidentally recording and wearing down the battery, close it.

18 **Hooks for shoulder strap** (p.46)

19 **Charging lamp** (p.8)
This orange lamp lights up while the battery pack is charging in the camcorder.

20 **Lithium battery compartment (inside the cover)** (p.10, 37)
Insert a lithium battery here with to activate the clock.

21 **Cassette compartment cover** (p.10, 12, 37)
When you insert or eject a cassette, open the whole of this cover with sliding the cover lock.

22 **MIC DC OUT jack**
This jack supplies power to an external microphone (not supplied).

23 **MIC jack**
Connect an optional external microphone (stereo or monaural). This jack also accepts a "plug-in-power" microphone. If the microphone has two plugs, connect the DC IN plug to the MIC DC OUT jack on the camcorder.

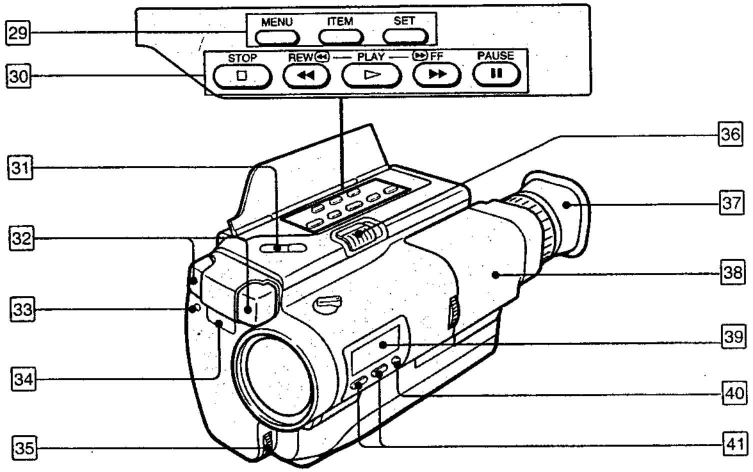
24 **PHONES (headphones) jack(stereo)** (p.18)
Connect headphones (not supplied) to monitor the sound while viewing the playback or the recording picture.

25 **Jack cover**

26 **Instant stand** (p.14, 24)
Lift up it to use as a handy camcorder stand.

27 **Tripod receptacle** (p.14)
Attach a tripod (not supplied) here.
When attaching a non-SONY tripod, make sure that the length of the camera mounting screw is shorter than 6.5 mm (9/32 inches). Otherwise, the screw might damage the inner part of the camcorder.

28 **Grip strap** (p.14)
Put your hand through the grip strap to hold the camcorder. Adjust the length of the strap so that your thumb can easily touch START/STOP.



29 **Menu operation buttons** (p.30, 32)
MENU: Press to display the menu in the viewfinder.
ITEM: Press to select the desired item.
SELECT: Press to set the mode of the selected item.

30 **Tape transport buttons** (p.22)
□ STOP
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fast forward)
❚❚ PAUSE
These buttons will function in PLAYER mode.

31 **EDITSEARCH button** (p.18, 34)
Press it to check the recorded scene in the viewfinder in CAMERA Standby mode.
+ side: to view the forward playback picture
– side: to view the reverse playback picture

32 **Built-in microphone (stereo)**

33 **Camera recording / battery lamp** (p.15, 50)
This red lamp lights up during camera recording. When it flashes, the battery is dead.

34 **Front remote sensor** (p.45)
Aim the Remote Commander here for remote control.

35 **Focus dial** (p.27)
Turn it to adjust the focus manually and to achieve a sharp focus in manual focus mode.

36 **Cover lock** (p.12, 37)
Slide it to open the cassette compartment cover.

37 **Eyecup** (p.14)
To achieve better camera recording, place your eye firmly against it.

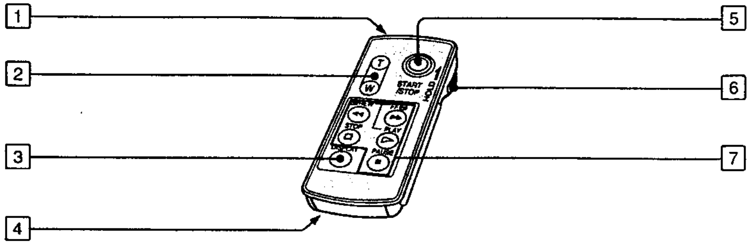
38 **Viewfinder** (p.13, 50, 51)
You can monitor the monochrome picture being recorded or played back. For details on the indicators in the viewfinder, see page 51.

39 **Display window** (p.50, 51)
Displays operating information such as the clock or the tape counter.

40 **RESET button** (p.15)
Press to reset the tape counter to zero.

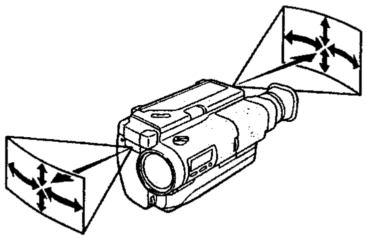
41 **DATE (+) and TIME (NEXT) buttons** (p.11, 17)
Press to set the clock or to display or turn off the date and time in the viewfinder. When setting the date and time, press DATE (+) button to advance numbers and press TIME (NEXT) button to set the next factor.

Wireless Remote Commander



1. **Transmitter**
   Point toward the remote sensor to control the camcorder after turning the POWER switch on the camcorder.
2. **Power zoom button**
3. **DISPLAY button**
   Press to display the viewfinder screen indicators on the TV when you connect the camcorder to a TV.
   To erase the indicators, press again.
4. **Lithium battery holder** (p.37)
5. **START/STOP button**
6. **HOLD switch**
   Slide in the direction of the arrow to prevent the buttons from being accidentally pressed. **Before using this Remote Commander, slide in the direction opposite to the arrow.**
7. **Tape transport buttons**

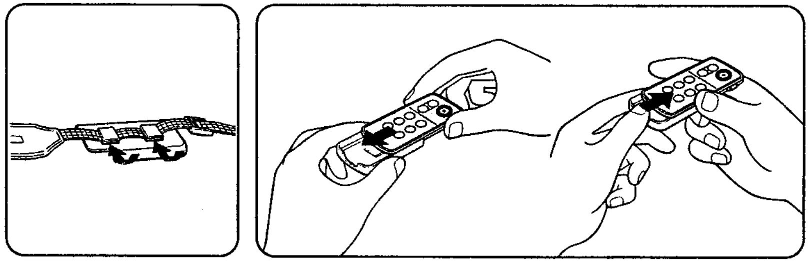
Remote Control Direction



Notes on the Remote Commander
- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VTRs to avoid remote control misoperation. If you use another Sony VTR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VTR with black paper.

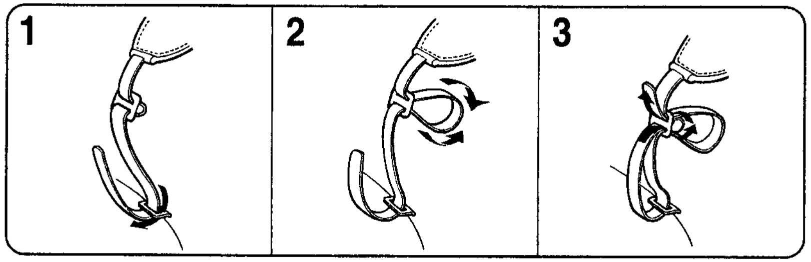
Using the Remote Commander holder

You can slide the Remote Commander holder onto the shoulder strap.



Attaching the shoulder strap

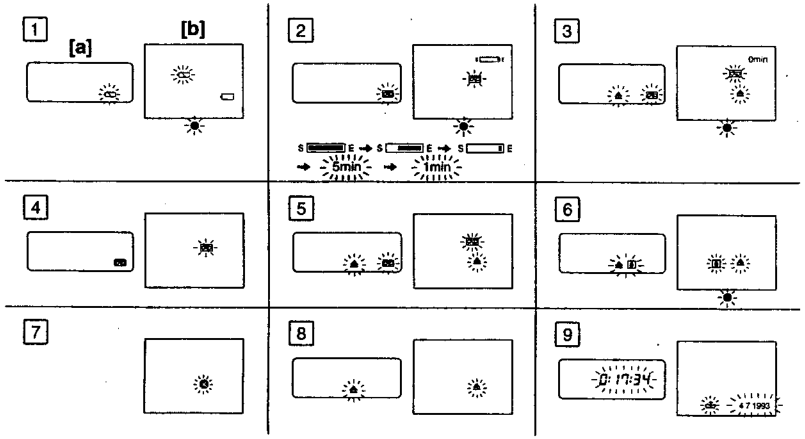
Attach the supplied shoulder strap to the hooks for the shoulder strap (p.43).



Indicators in the Display Window and the Viewfinder

Warning Indicators

If indicators flash in the display window [a] or the viewfinder [b] , or a caution lamp on the camcorder flashes, check the following:



1 Battery Remaining
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 The tape is near the end.

3 The tape has run out.

4 No tape has been inserted.

5 The tab on the tape is out (red) (p.35).

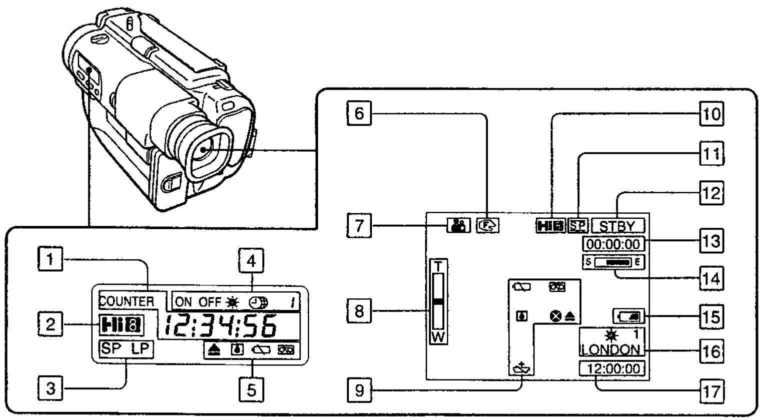
6 Moisture condensation has occurred (p.38).

7 The video heads may be contaminated (p.39).

8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 The lithium battery is weak or the lithium battery is not installed (p.36).

Indicators In the Display Window and the Viewfinder



1 Tape counter, time or date indicator (p.11, 15)

2 Playing back or recording in Hi8 format (p.35)

3 Indicates the recording mode when recording/ playing back a tape (p.15, 35)

4 World clock indicators (p.32)

5 Warning indicators (p.50)

6 Manual focusing (p.26)

7 PROGRAM AE mode indicator (p.29)

8 Power zoom indicator (p.16) / Exposure indicator (p.28)

9 Warning indicators (p.50)

10 Lights up while recording in Hi8 system (p.15, 35)

11 Indicates the recording mode when recording/ playing back a tape (p.15, 35)

12 Tape transport mode (p.15, 22)

13 Tape counter (p.15)

14 Tape remaining indicator (p.50)

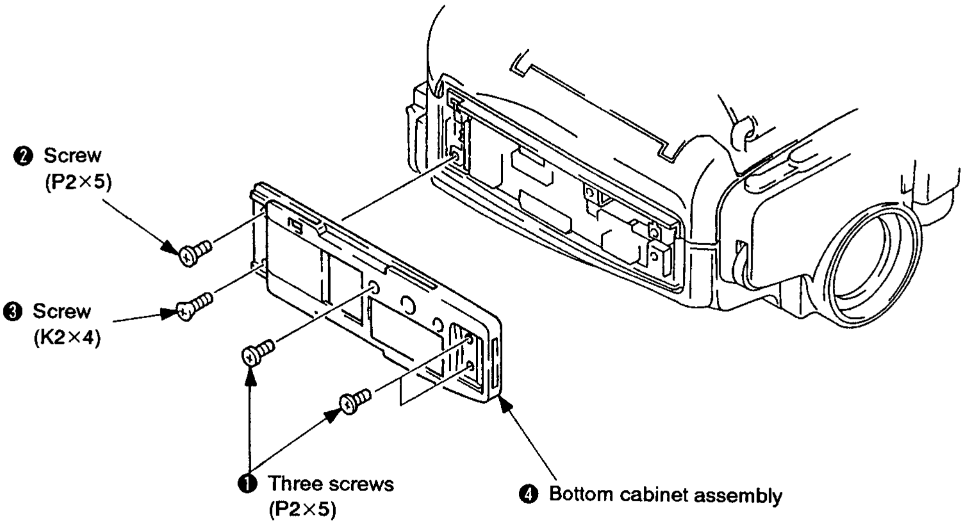
15 Battery remaining indicator (p.10)

16 World clock indicators (p.32)

17 Date or Time (p.17)

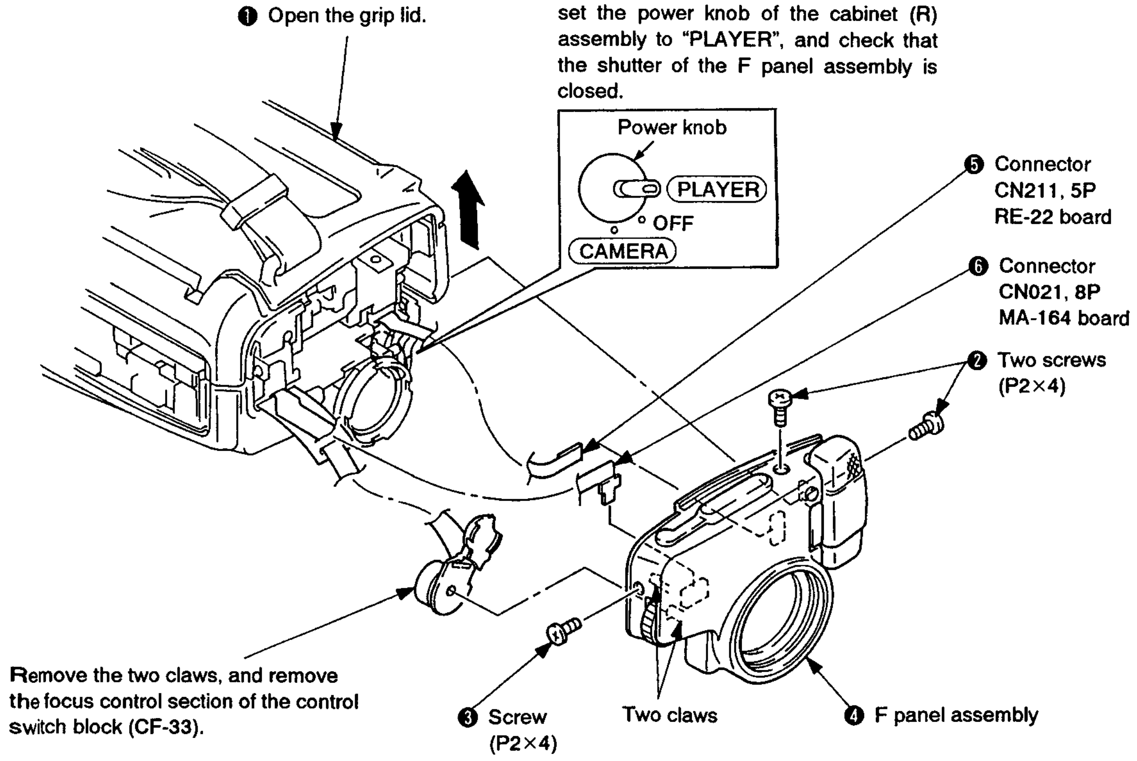
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF BOTTOM CABINET ASSEMBLY

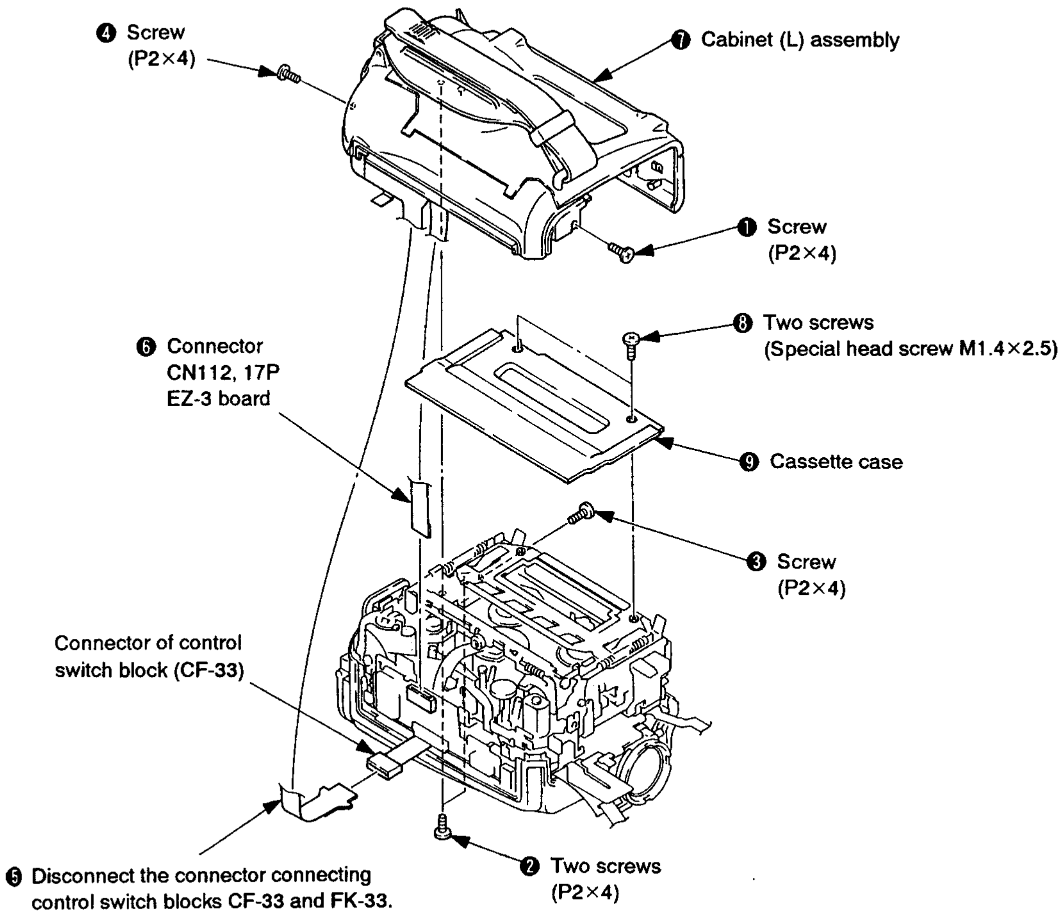

② Screw
(P2×5)
③ Screw
(K2×4)
① Three screws
(P2×5)
④ Bottom cabinet assembly

2-2. REMOVAL OF F PANEL ASSEMBLY

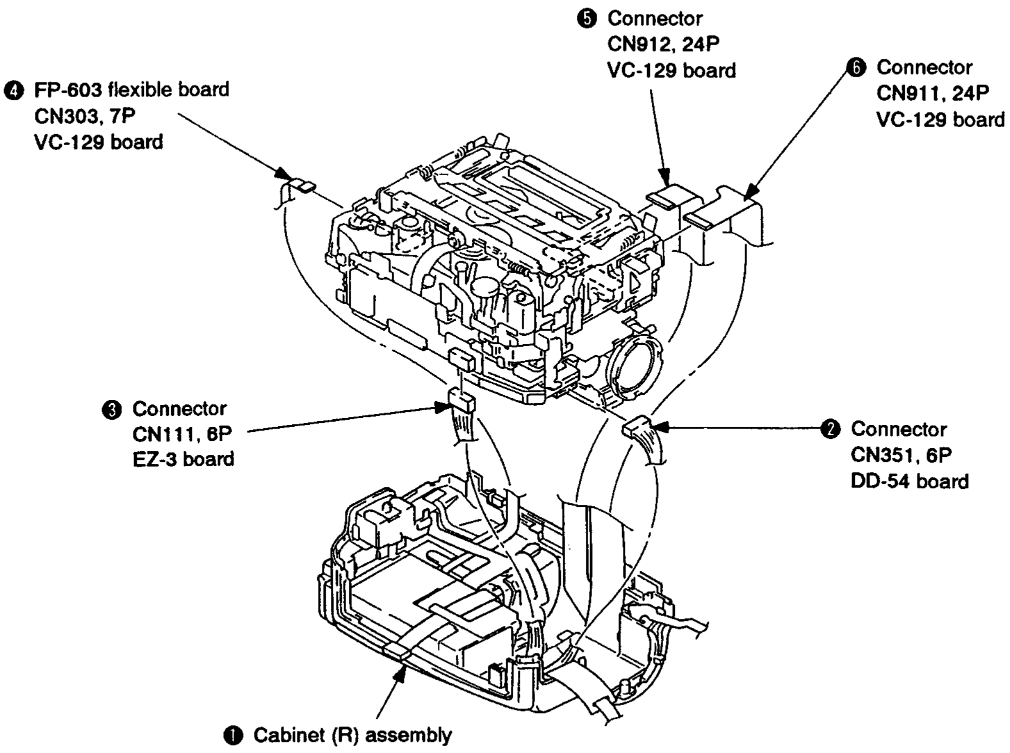
Note) When mounting the F panel assembly, set the power knob of the cabinet (R) assembly to "PLAYER", and check that the shutter of the F panel assembly is closed.


① Open the grip lid.
Power knob
PLAYER
OFF
CAMERA
⑤ Connector
CN211, 5P
RE-22 board
⑥ Connector
CN021, 8P
MA-164 board
② Two screws
(P2×4)
⑦ Remove the two claws, and remove the focus control section of the control switch block (CF-33).
③ Screw
(P2×4)
Two claws
④ F panel assembly

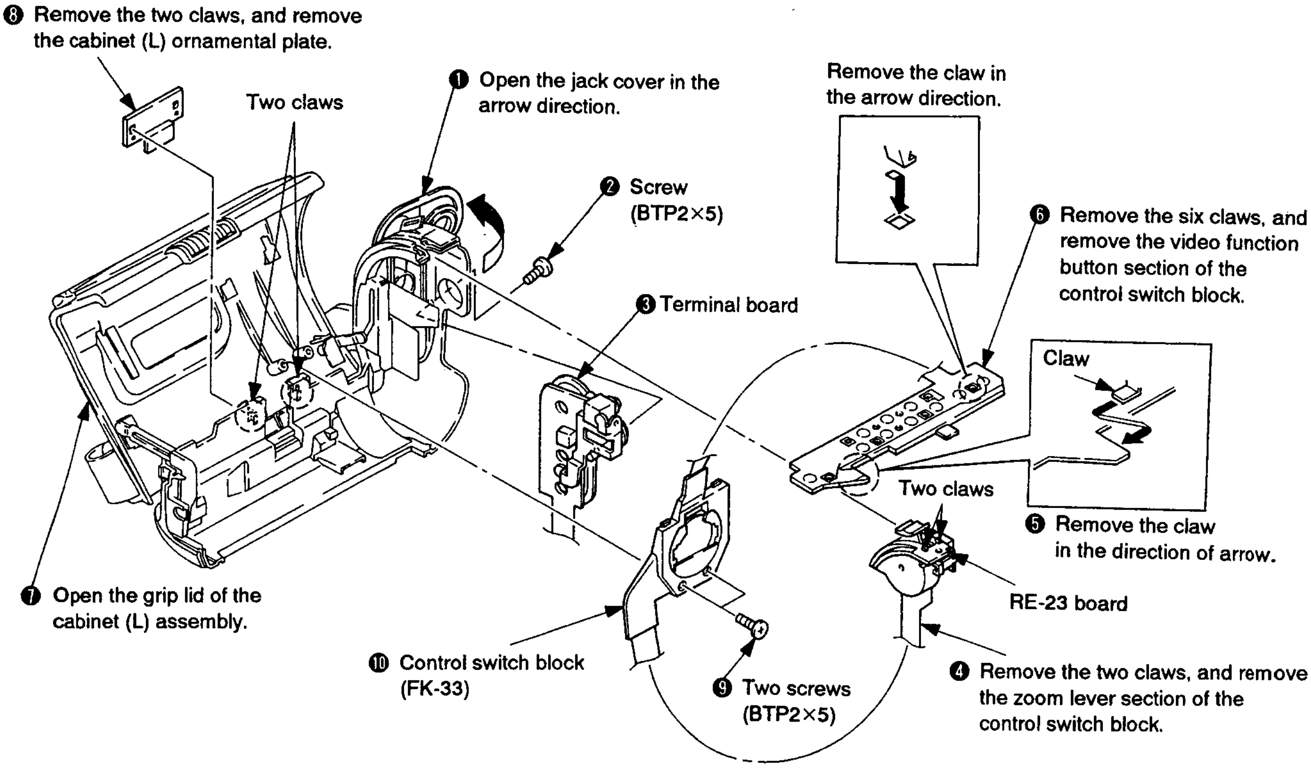
2-3. REMOVAL OF CABINET (L) ASSEMBLY AND CASSETTE CASE


❹ Screw
(P2×4)
❼ Cabinet (L) assembly
❶ Screw
(P2×4)
❻ Connector
CN112, 17P
EZ-3 board
❽ Two screws
(Special head screw M1.4×2.5)
❾ Cassette case
❸ Screw
(P2×4)
Connector of control
switch block (CF-33)
❺ Disconnect the connector connecting
control switch blocks CF-33 and FK-33.
❷ Two screws
(P2×4)

2-4. REMOVAL OF CABINET (R) ASSEMBLY


❺ Connector
CN912, 24P
VC-129 board
❹ FP-603 flexible board
CN303, 7P
VC-129 board
❻ Connector
CN911, 24P
VC-129 board
❸ Connector
CN111, 6P
EZ-3 board
❷ Connector
CN351, 6P
DD-54 board
❶ Cabinet (R) assembly

2-5. REMOVAL OF CONTROL SWITCH BLOCK (FK-33 BOARD), TERMINAL BOARD



❶ Open the jack cover in the arrow direction.

❷ Screw (BTP2×5)

❸ Terminal board

❹ Remove the two claws, and remove the zoom lever section of the control switch block.

❺ Remove the claw in the direction of arrow.

❻ Remove the six claws, and remove the video function button section of the control switch block.

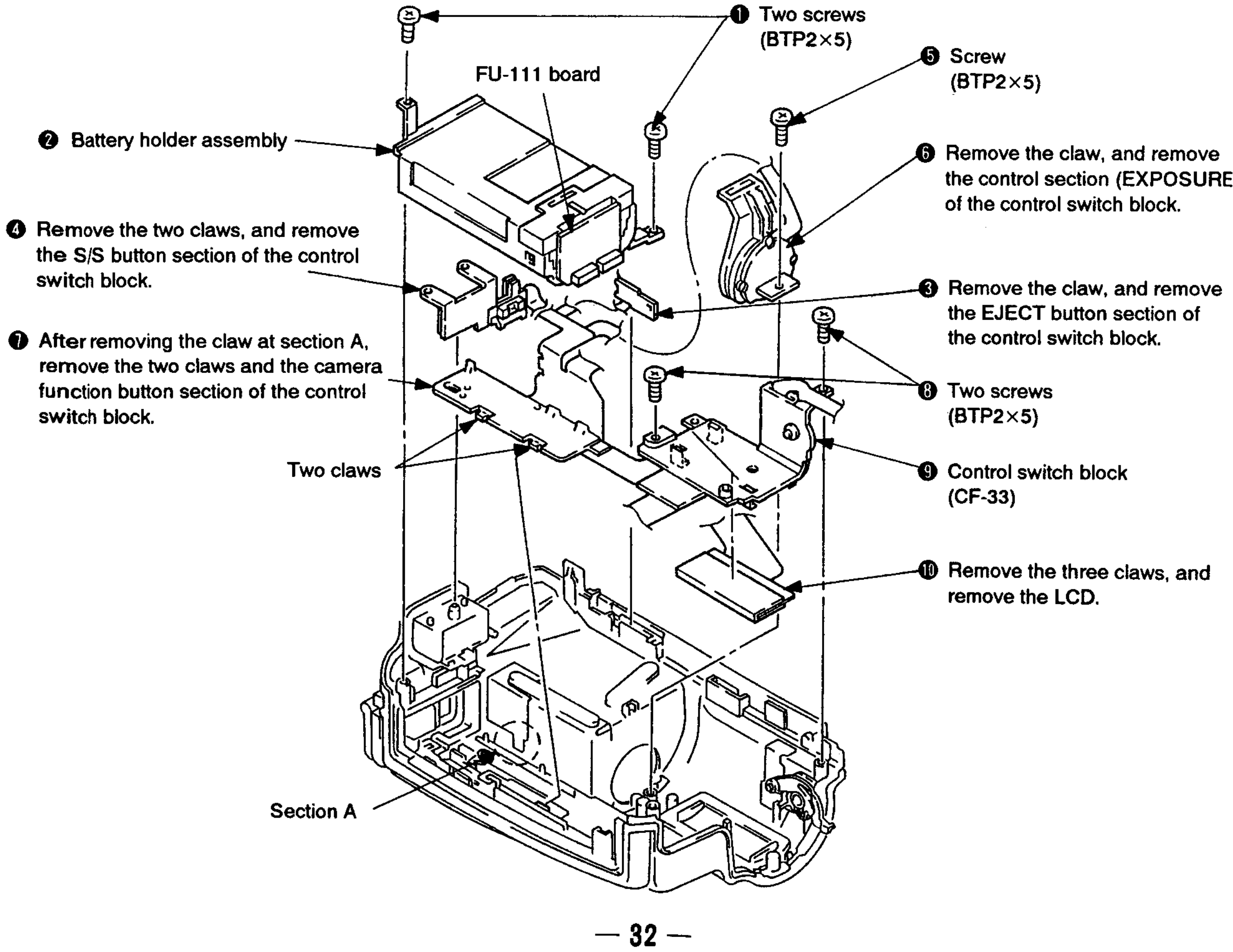
❼ Open the grip lid of the cabinet (L) assembly.

❽ Remove the two claws, and remove the cabinet (L) ornamental plate.

❾ Two screws (BTP2×5)

❿ Control switch block (FK-33)

2-6. REMOVAL OF CONTROL SWITCH BLOCK (CF-33 BOARD), BATTERY HOLDER ASSEMBLY (FU-111 BOARD)



❶ Two screws (BTP2×5)

❷ Battery holder assembly

❸ Remove the claw, and remove the EJECT button section of the control switch block.

❹ Remove the two claws, and remove the S/S button section of the control switch block.

❺ Screw (BTP2×5)

❻ Remove the claw, and remove the control section (EXPOSURE) of the control switch block.

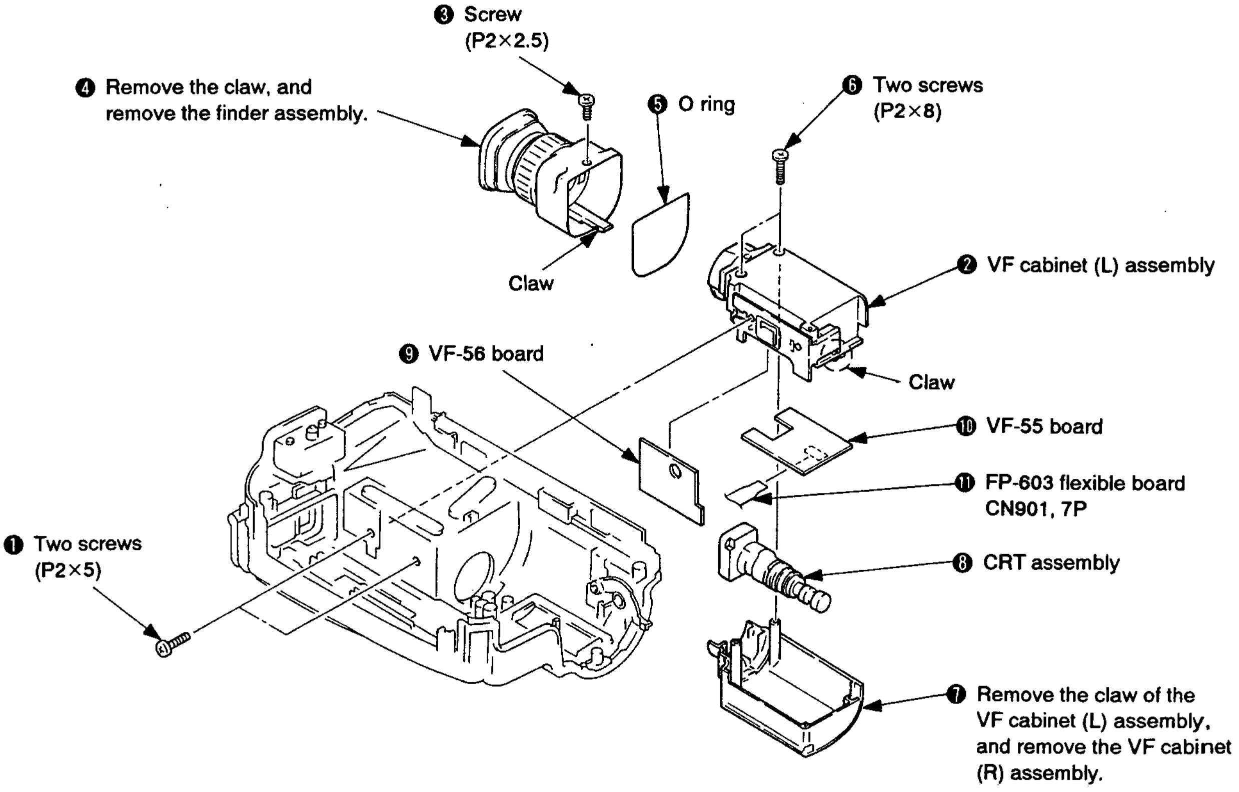
❼ After removing the claw at section A, remove the two claws and the camera function button section of the control switch block.

❽ Two screws (BTP2×5)

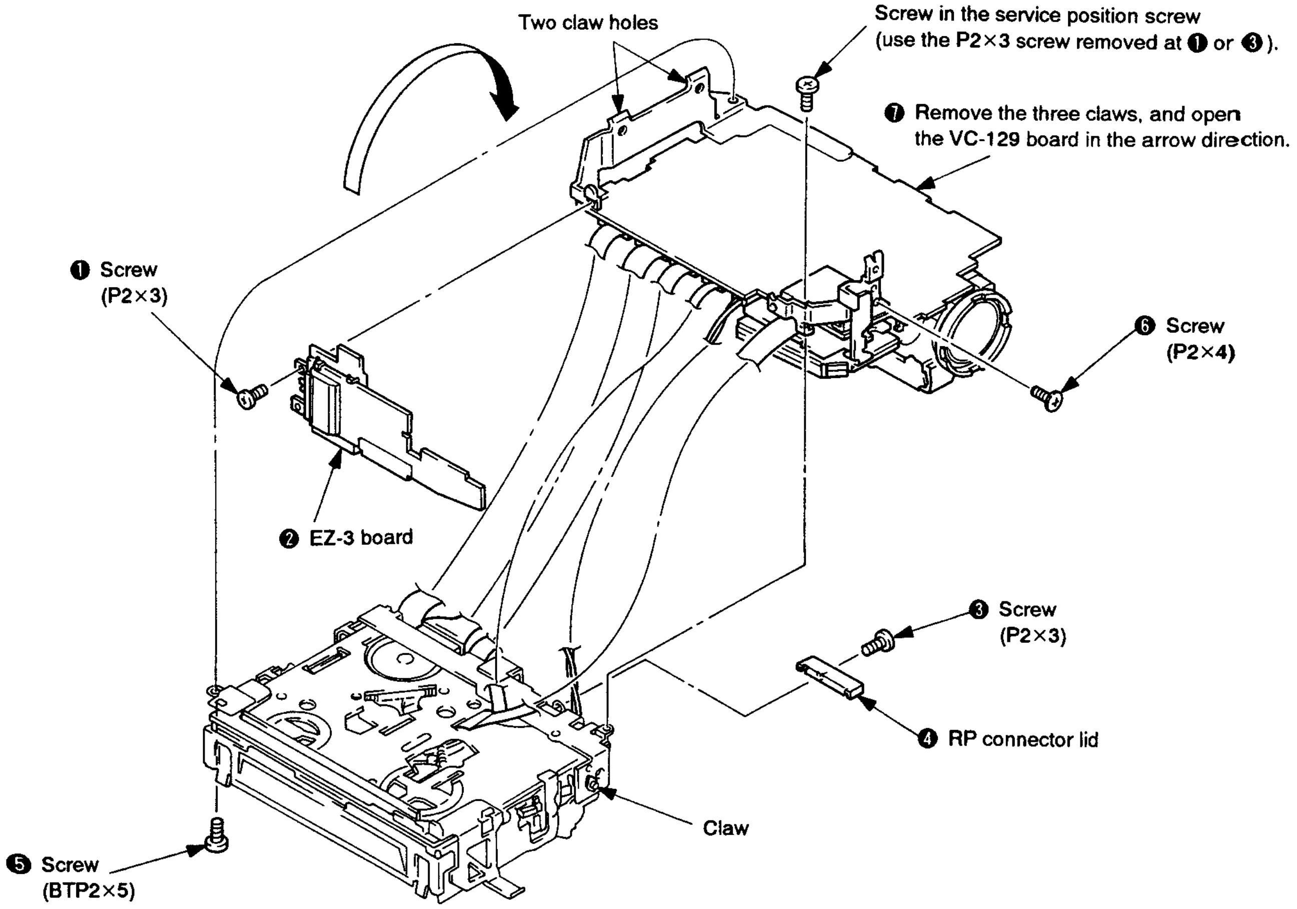
❾ Control switch block (CF-33)

❿ Remove the three claws, and remove the LCD.

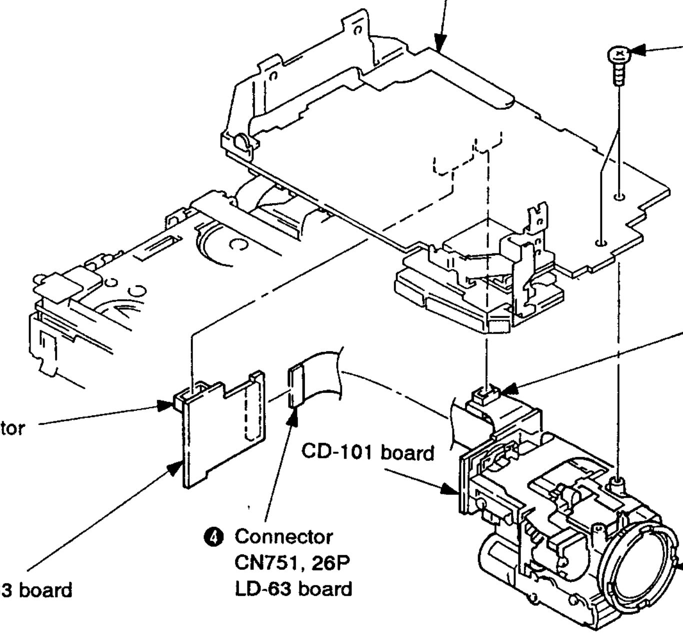
2-7. REMOVAL OF EVF ASSEMBLY (VF-55, VF-56 BOARDS)


❸ Screw
(P2×2.5)
❹ Remove the claw, and
remove the finder assembly.
❺ O ring
❻ Two screws
(P2×8)
Claw
❷ VF cabinet (L) assembly
❾ VF-56 board
Claw
❿ VF-55 board
⓫ FP-603 flexible board
CN901, 7P
❶ Two screws
(P2×5)
❽ CRT assembly
❼ Remove the claw of the
VF cabinet (L) assembly,
and remove the VF cabinet
(R) assembly.

2-8. OPENING OF VC-129 BOARD (SERVICE POSITION)


Two claw holes
Screw in the service position screw
(use the P2×3 screw removed at ❶ or ❸).
❼ Remove the three claws, and open
the VC-129 board in the arrow direction.
❶ Screw
(P2×3)
❻ Screw
(P2×4)
❷ EZ-3 board
❸ Screw
(P2×3)
❹ RP connector lid
Claw
❺ Screw
(BTP2×5)

2-9. REMOVAL OF LENS ASSEMBLY (LSV-100A)



① Open the VC-129 board according to 2-8.

② Two screws
(BTP2×4)

③ LD-63 board

④ Connector
CN751, 26P
LD-63 board

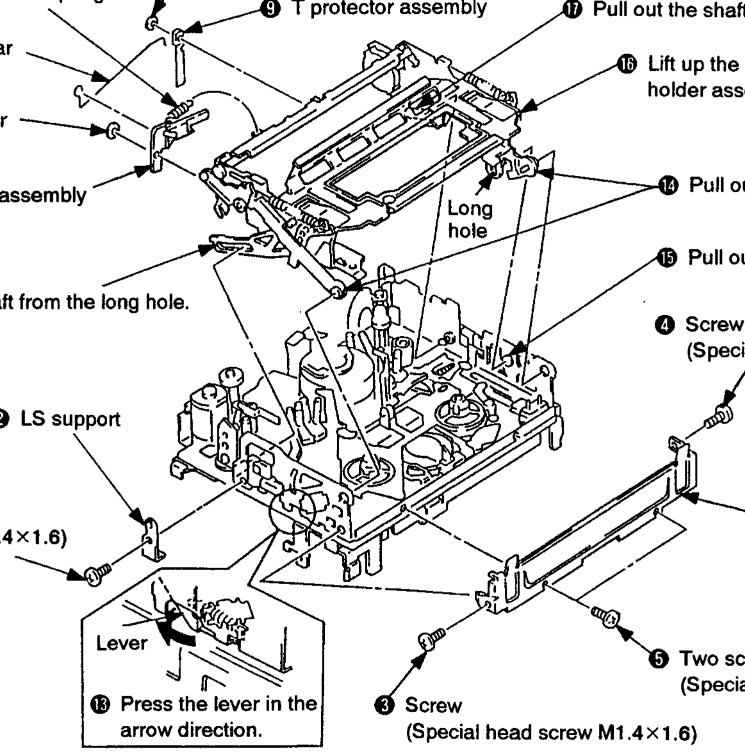
⑤ Connector
CN601, 16P
VC-129 board

⑥ Lens assembly
(LSV-100A)

2-10. REMOVAL OF CASSETTE COMPARTMENT HOLDER ASSEMBLY

In the beginning, set to USE mode.

(When setting to USE mode, see "2-4. Handling of Mode Selector" in "8 mm video mechanical adjustment manual II FL Mechanism (Q mechanism)".)



① Screw
(Special head screw M1.4×1.6)

② LS support

③ Screw
(Special head screw M1.4×1.6)

④ Screw
(Special head screw M1.4×1.6)

⑤ Two screws
(Special head screw M1.4×1.6)

⑥ LS frame (L)

⑦ Stopper washer

⑧ Joint bar

⑨ T protector assembly

⑩ Washer

⑪ Tension coil spring

⑫ TP arm assembly

⑬ Press the lever in the arrow direction.

⑭ Pull out the shaft from the hole.

⑮ Pull out the shaft from the long hole.

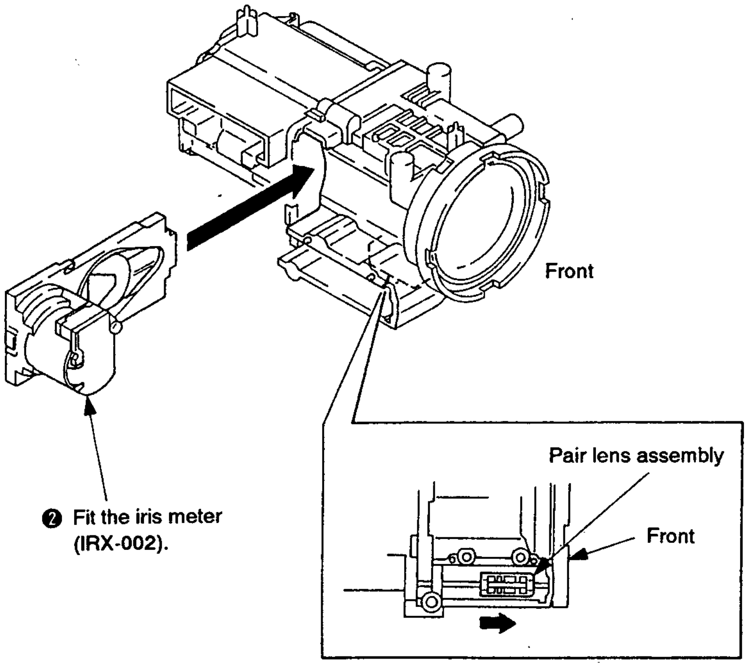
⑯ Lift up the cassette compartment holder assembly towards the drum.

⑰ Pull out the shaft from the long hole.

⑱ Pull out the shaft from the long hole.

2-11. MOUNTING OF IRIS METER (IRX-002)

Note) When replacing the lens or its component parts (motor, iris, etc.), the iris and flange back must be adjusted.

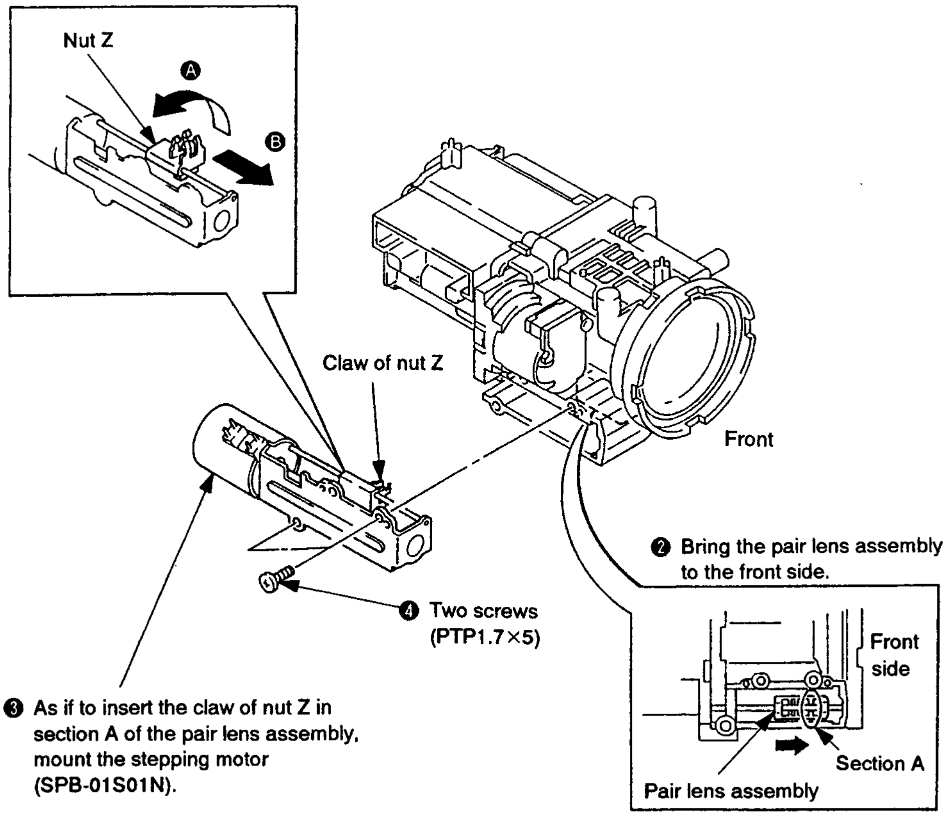

Front
Pair lens assembly
Front

② Fit the iris meter (IRX-002).

① Bring the pair lens assembly to the front.

2-12. MOUNTING OF STEPPING MOTOR (SPB-01S01N)

① Raise nut Z in the arrow direction Ⓐ, bring it towards direction Ⓑ and clamp it.

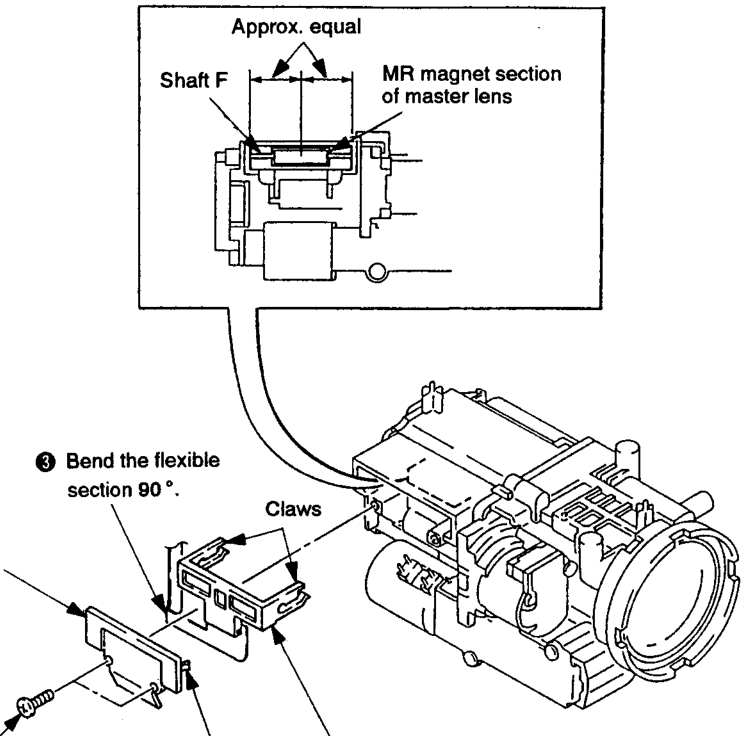

Nut Z
Ⓐ
Ⓑ
Claw of nut Z
Front
Front side
Section A
Pair lens assembly

② Bring the pair lens assembly to the front side.

③ As if to insert the claw of nut Z in section A of the pair lens assembly, mount the stepping motor (SPB-01S01N).

④ Two screws (PTP1.7×5)

2-13. MOUNTING OF MR SENSOR SECTION WHEN MOUNTING M FLEXIBLE BLOCK ASSEMBLY


Approx. equal
Shaft F
MR magnet section of master lens
Claws
Claw

❶ Bring the MR magnet section of the master lens to the center.

❷ Insert the MR holder so that the MR magnet section fits between the claws. Insert the claw of the MR holder in the shaft F as well.

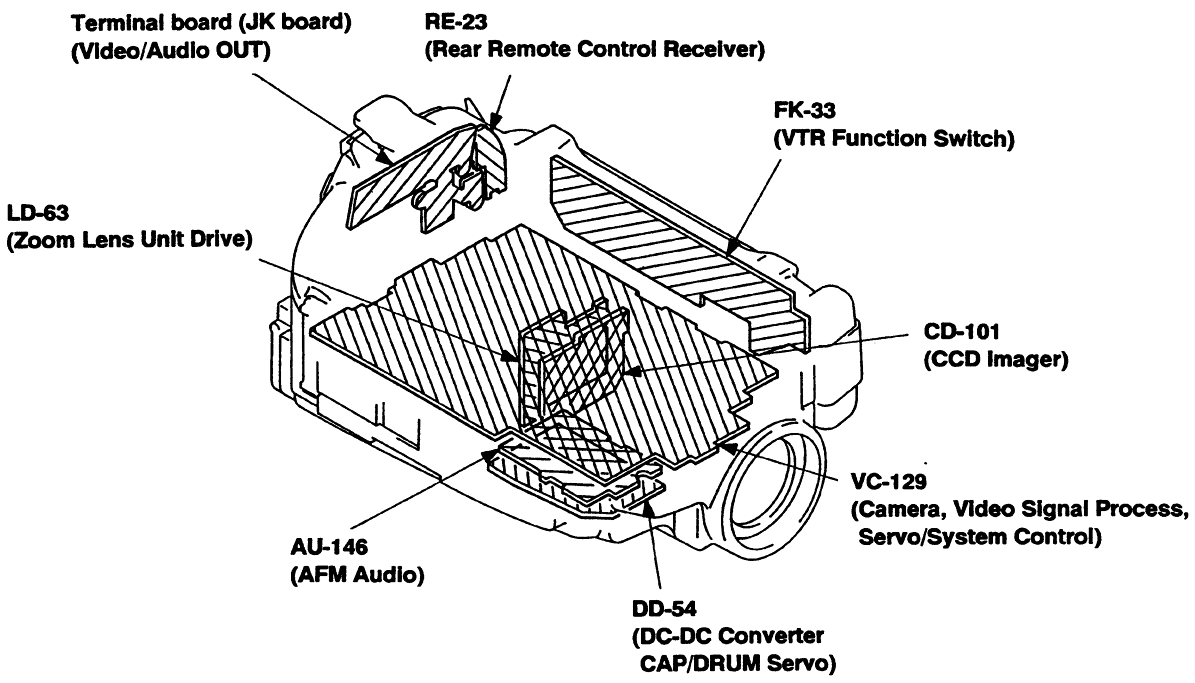
❸ Bend the flexible section 90 °.

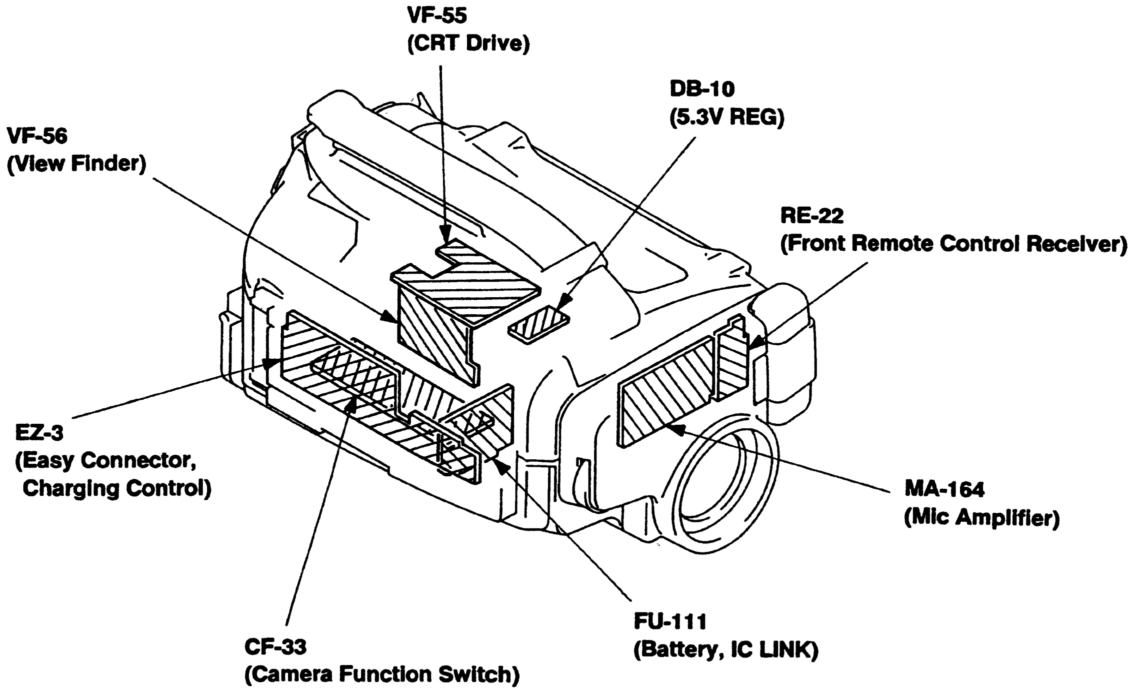
❹ Fit the two claws and mount the MR retainer.

❺ Two screws (PTP1.7×5)

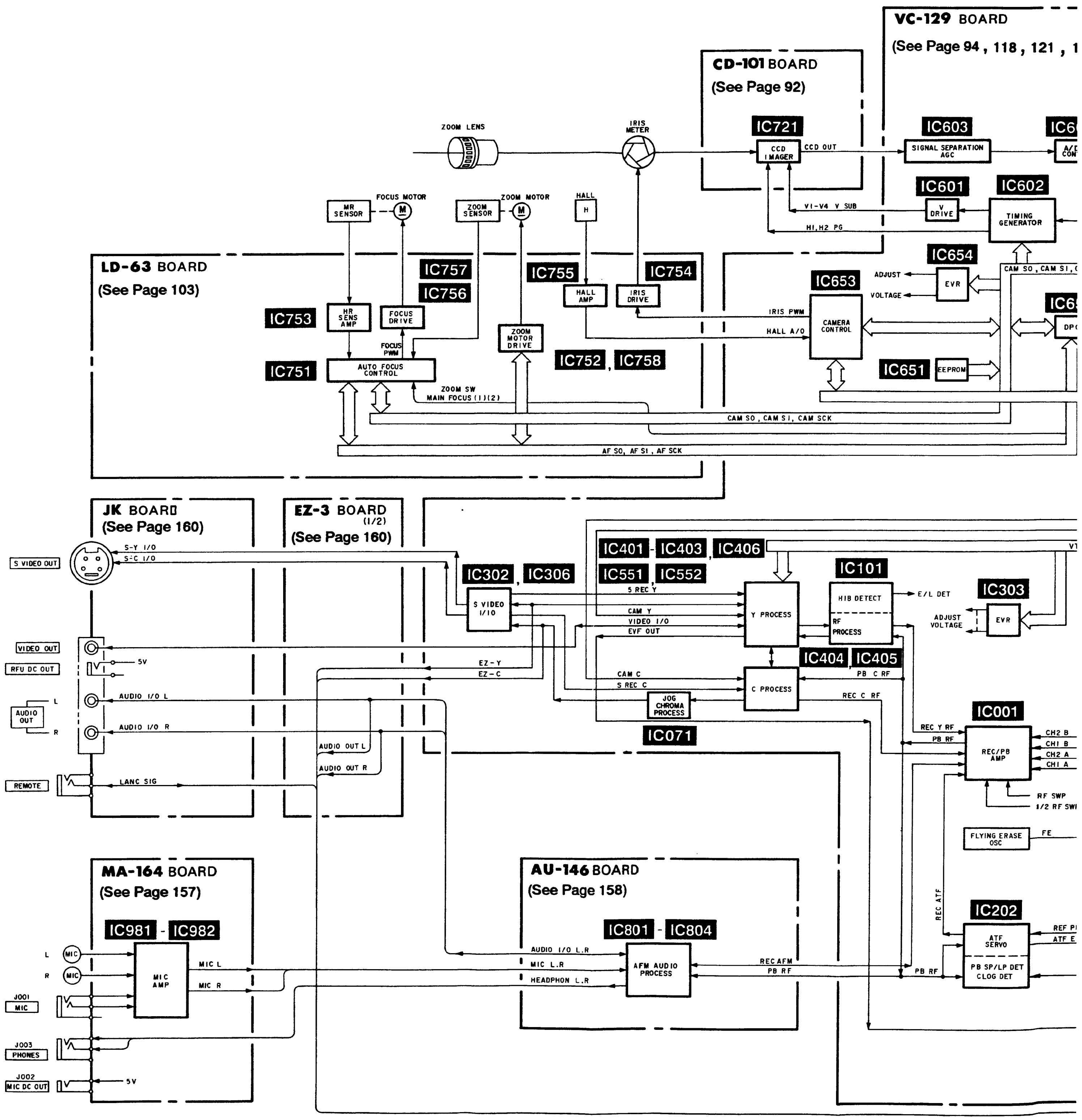
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

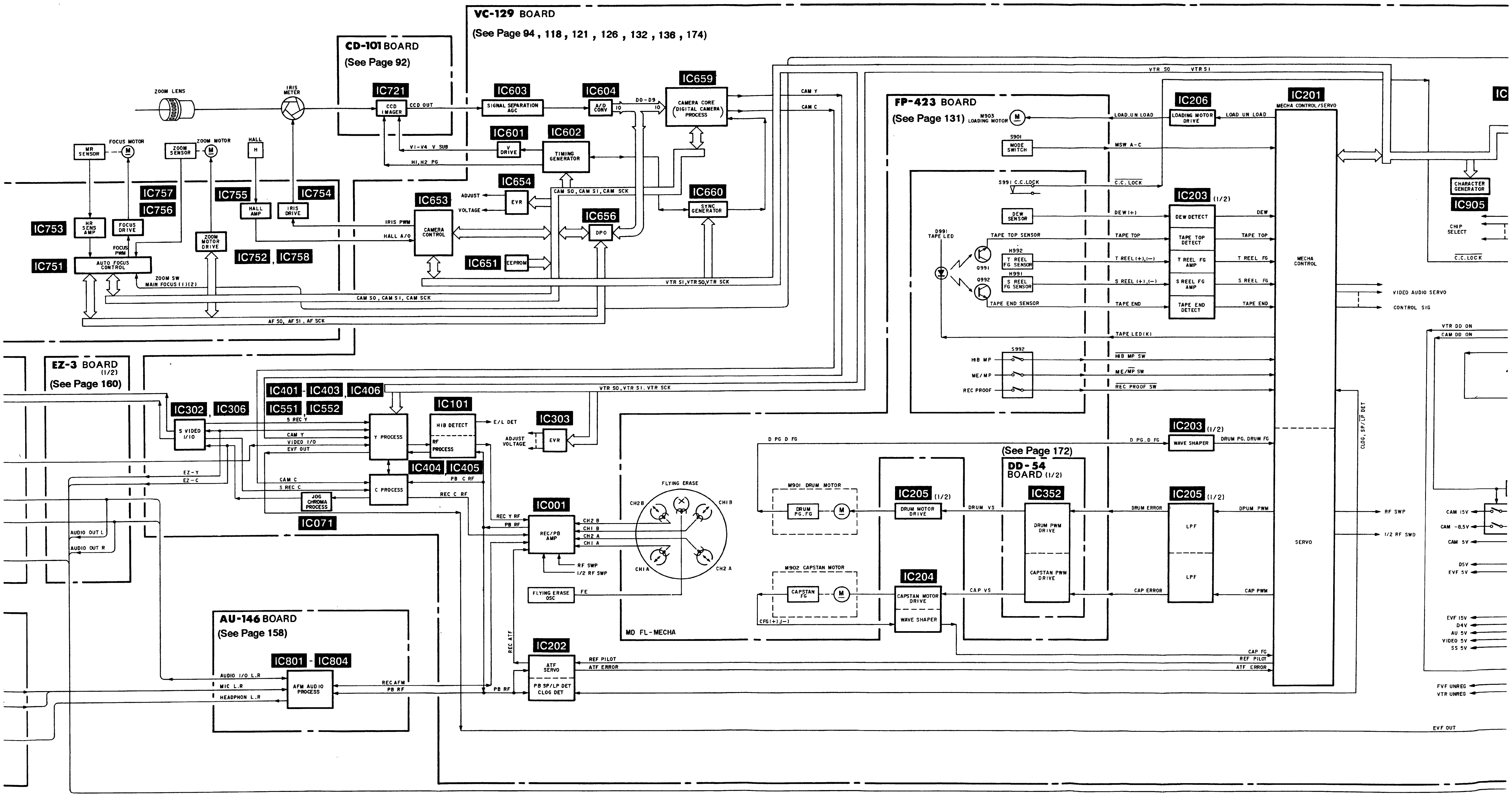

Terminal board (JK board)
(Video/Audio OUT)
RE-23
(Rear Remote Control Receiver)
FK-33
(VTR Function Switch)
LD-63
(Zoom Lens Unit Drive)
CD-101
(CCD Imager)
VC-129
(Camera, Video Signal Process, Servo/System Control)
AU-146
(AFM Audio)
DD-54
(DC-DC Converter CAP/DRUM Servo)

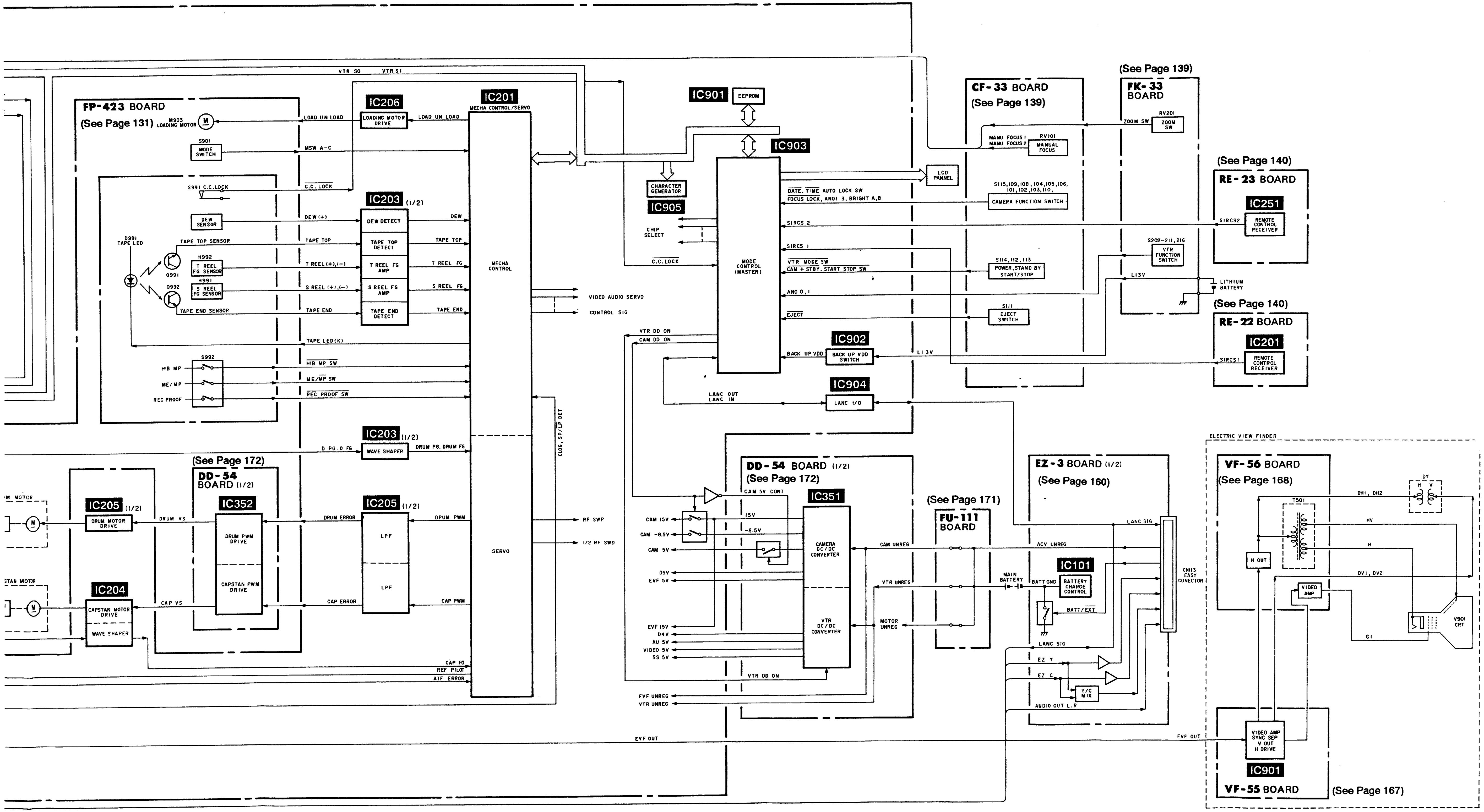

VF-55
(CRT Drive)
DB-10
(5.3V REG)
VF-56
(View Finder)
RE-22
(Front Remote Control Receiver)
EZ-3
(Easy Connector, Charging Control)
MA-164
(Mic Amplifier)
FU-111
(Battery, IC LINK)
CF-33
(Camera Function Switch)

3-2. OVERALL BLOCK DIAGRAM

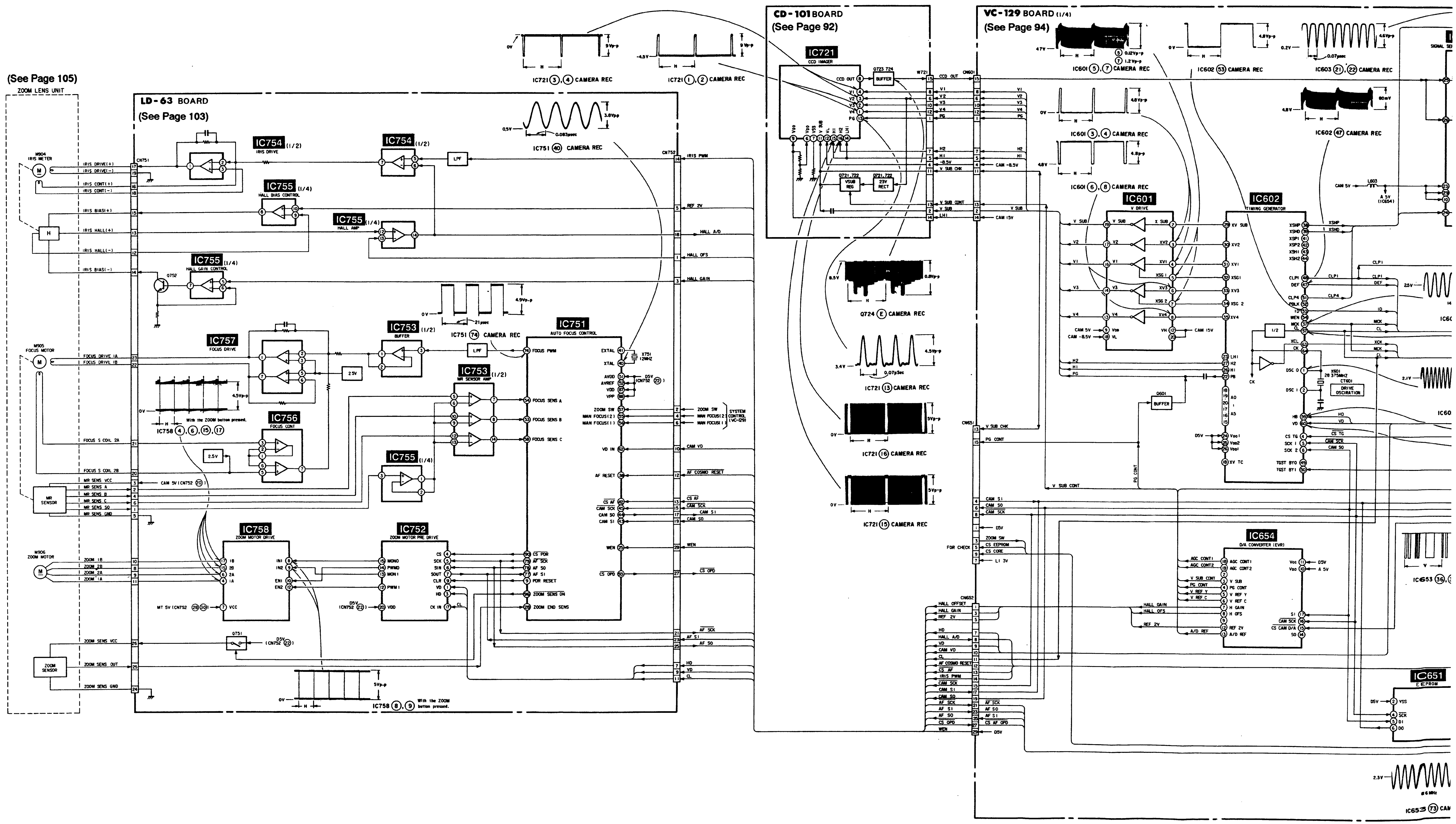

VC-129 BOARD
(See Page 94 , 118 , 121 , 1
CD-101 BOARD
(See Page 92)
ZOOM LENS
IRIS METER
IC721
CCD IMAGER
CCD OUT
IC603
SIGNAL SEPARATION AGC
IC601
V DRIVE
IC602
TIMING GENERATOR
V1-V4 V SUB
H1,H2 PG
FOCUS MOTOR
MR SENSOR
ZOOM SENSOR
ZOOM MOTOR
HALL
H
LD-63 BOARD
(See Page 103)
IC757
IC756
IC755
IC754
IC753
HR SENS AMP
FOCUS DRIVE
HALL AMP
IRIS DRIVE
ZOOM MOTOR DRIVE
FOCUS PWM
IC751
AUTO FOCUS CONTROL
ZOOM SW
MAIN FOCUS (1)(2)
IC752 , IC758
IC654
EVR
ADJUST
VOLTAGE
IC653
CAMERA CONTROL
IRIS PWM
HALL A/O
IC651
EEPROM
CAM SO , CAM SI , CAM SCK
AF SO, AF SI , AF SCK
JK BOARD
(See Page 160)
EZ-3 BOARD (1/2)
(See Page 160)
S VIDEO OUT
S-Y I/O
S-C I/O
IC302 , IC306
S VIDEO I/IO
VIDEO OUT
RFU DC OUT
5V
AUDIO OUT
L
R
AUDIO I/O L
AUDIO I/O R
EZ-Y
EZ-C
AUDIO OUT L
AUDIO OUT R
REMOTE
LANC SIG
IC401 - IC403 , IC406
IC551 , IC552
S REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC101
HIB DETECT
RF PROCESS
E/L DET
IC303
ADJUST VOLTAGE
EVR
IC404 , IC405
PB C RF
CAM C
S REC C
C PROCESS
JOG CHROMA PROCESS
IC071
REC C RF
IC001
REC Y RF
PB RF
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWI
FLYING ERASE OSC
FE
REC ATF
IC202
ATF SERVO
PB SP/LP DET
CLOG DET
REF PI
ATF E
MA-164 BOARD
(See Page 157)
IC981 - IC982
MIC
MIC AMP
MIC L
MIC R
J001
MIC
J003
PHONES
J002
MIC DC OUT
AU-146 BOARD
(See Page 158)
IC801 - IC804
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
AFM AUDIO PROCESS
REC AFM
PB RF

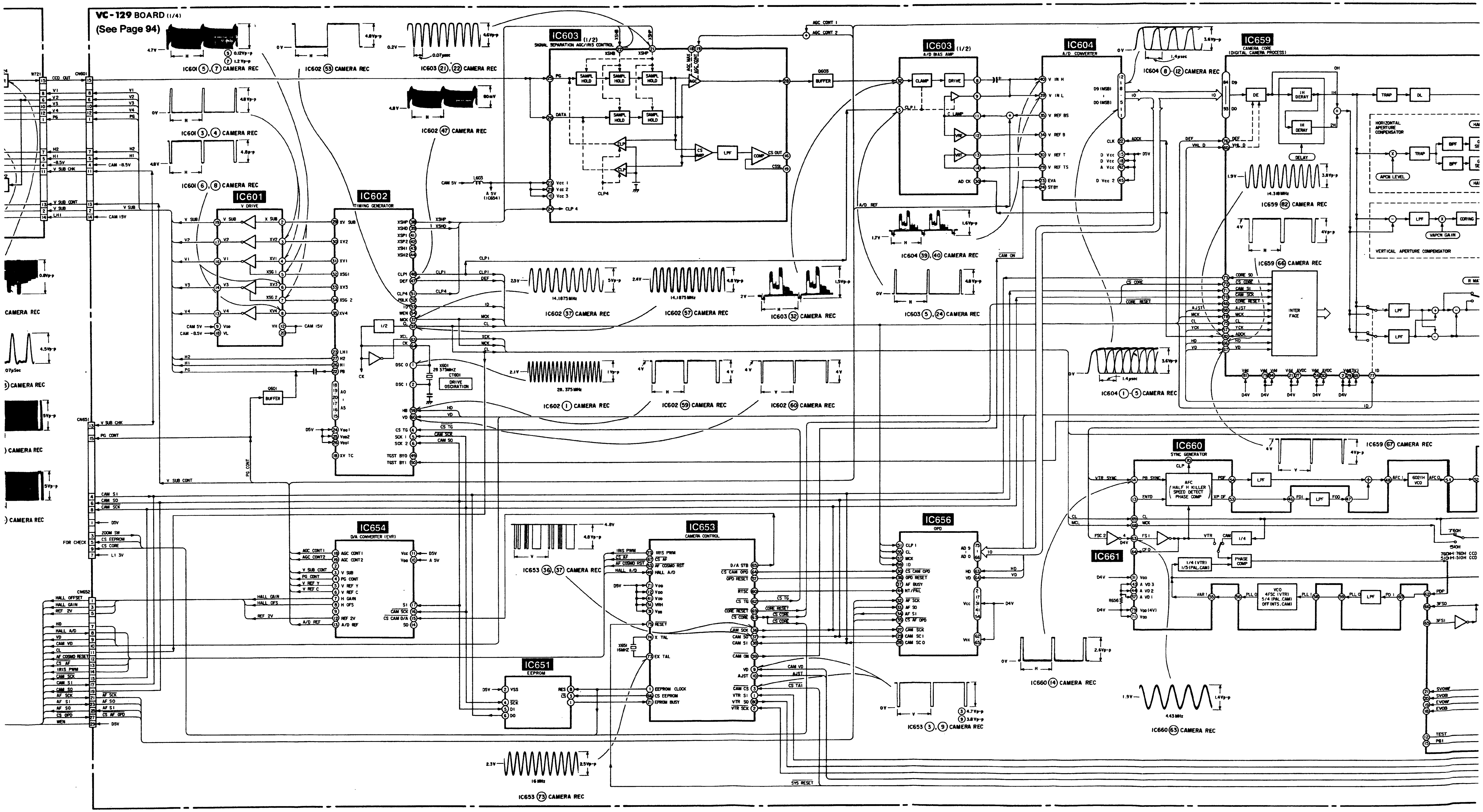
RAM

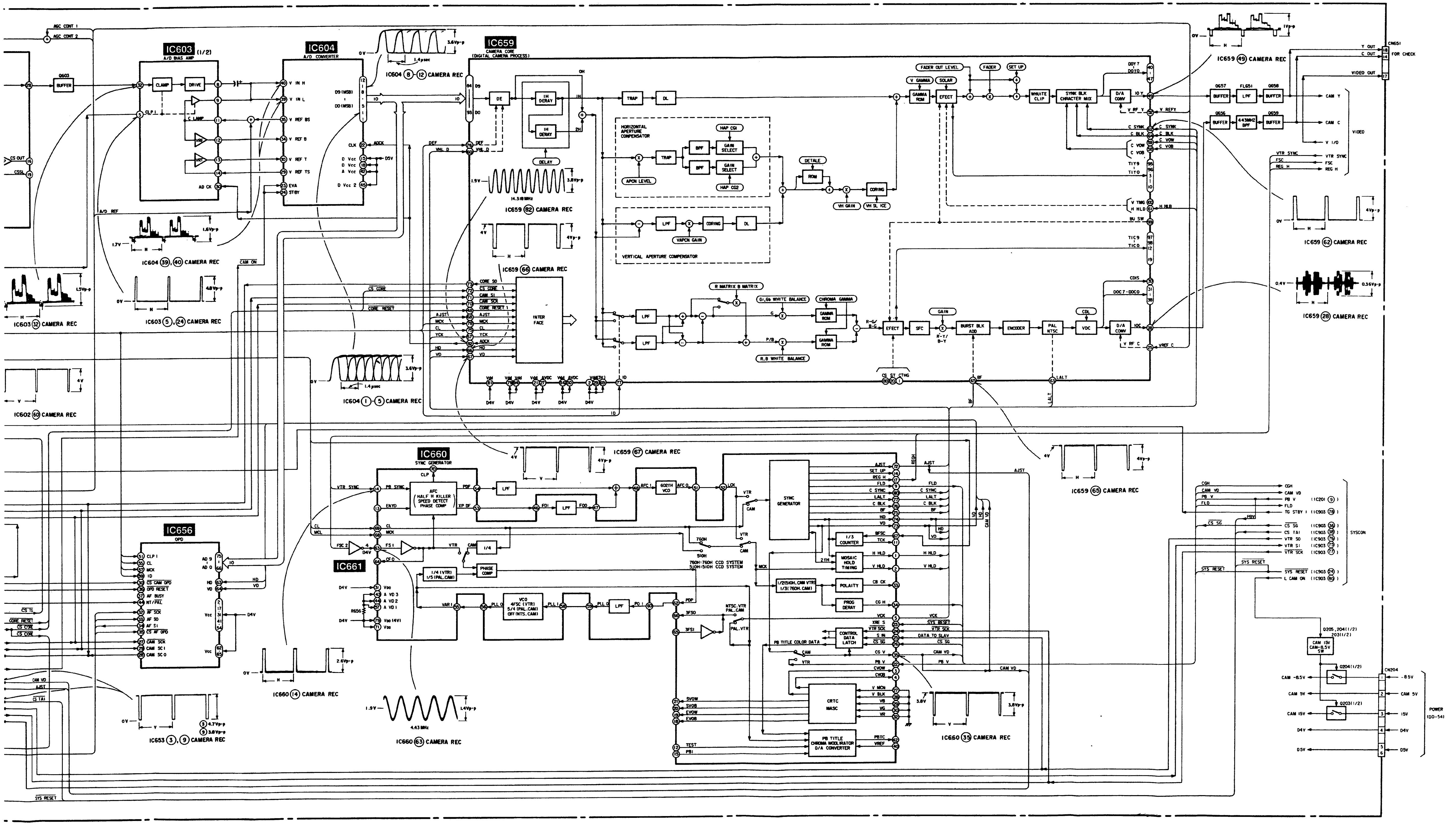

VC-129 BOARD
(See Page 94, 118, 121, 126, 132, 136, 174)
CD-101 BOARD
(See Page 92)
ZOOM LENS
IRIS METER
IC721
CCD IMAGER
CCD OUT
IC603
SIGNAL SEPARATION AGC
IC604
A/D CONV
D0-D9
IC659
CAMERA CORE (DIGITAL CAMERA) PROCESS
CAM Y
CAM C
IC601
V DRIVE
IC602
TIMING GENERATOR
V1-V4 V SUB
H1, H2 PG
MR SENSOR
FOCUS MOTOR
ZOOM SENSOR
ZOOM MOTOR
HALL
H
IC757
IC756
IC755
IC754
IC753
MR SENS AMP
FOCUS DRIVE
HALL AMP
IRIS DRIVE
ZOOM MOTOR DRIVE
FOCUS PWM
IC751
AUTO FOCUS CONTROL
IC752
IC758
ZOOM SW
MAIN FOCUS (1)(2)
IC654
EVR
ADJUST
VOLTAGE
IC653
CAMERA CONTROL
IRIS PWM
HALL A/D
IC651
EEPROM
IC656
DPO
IC660
SYNC GENERATOR
CAM SO, CAM SI, CAM SCK
VTR SI, VTR SO, VTR SCK
AF SO, AF SI, AF SCK
EZ-3 BOARD (1/2)
(See Page 160)
IC302
IC306
S VIDEO I/O
IC401 - IC403
IC406
IC551
IC552
5 REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC101
HIB DETECT
RF PROCESS
E/L DET
IC303
EVR
ADJUST VOLTAGE
VTR SO, VTR SI, VTR SCK
IC404
IC405
PB C RF
CAM C
S REC C
C PROCESS
REC C RF
JOG CHROMA PROCESS
IC071
EZ-Y
EZ-C
AUDIO OUT L
AUDIO OUT R
IC001
REC Y RF
PB RF
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE OSC
FE
FLYING ERASE
CH2 B
CH1 B
CH1 A
CH2 A
MD FL-MECHA
REC ATF
IC202
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
PB RF
AU-146 BOARD
(See Page 158)
IC801 - IC804
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
AFM AUDIO PROCESS
REC AFM
PB RF
FP-423 BOARD
(See Page 131)
M903 LOADING MOTOR
S901 MODE SWITCH
S991 C.C. LOCK
DEW SENSOR
D991 TAPE LED
TAPE TOP SENSOR
Q991
H992 T REEL FG SENSOR
H991 S REEL FG SENSOR
Q992
TAPE END SENSOR
S992
HI8 MP
ME/MP
REC PROOF
VTR SO
VTR SI
LOAD, UN LOAD
MSW A-C
C.C. LOCK
DEW (+)
TAPE TOP
T REEL (+), (-)
S REEL (+), (-)
TAPE END
TAPE LED (K)
HI8 MP SW
ME/MP SW
REC PROOF SW
IC206
LOADING MOTOR DRIVE
LOAD UN LOAD
IC203 (1/2)
DEW DETECT
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
DEW
TAPE TOP
T REEL FG
S REEL FG
TAPE END
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
IC203 (1/2)
WAVE SHAPER
D PG, D FG
DRUM PG, DRUM FG
(See Page 172)
DD-54 BOARD (1/2)
M901 DRUM MOTOR
DRUM PG. FG
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC205 (1/2)
LPF
LPF
DRUM ERROR
DPUM PWM
M902 CAPSTAN MOTOR
CAPSTAN FG
IC204
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CAP ERROR
CAP PWM
CFG (+), (-)
CAP FG
REF PILOT
ATF ERROR
CHARACTER GENERATOR
IC905
CHIP SELECT
C.C. LOCK
VIDEO AUDIO SERVO
CONTROL SIG
VTR DD ON
CAM DD ON
CLOG, SP/LP DET
RF SWP
1/2 RF SWD
CAM 15V
CAM -8.5V
CAM 5V
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
FVF UNREG
VTR UNREG
EVF OUT
IC


VTR SO
VTR SI
FP-423 BOARD
(See Page 131)
M903 LOADING MOTOR
M
S901
MODE SWITCH
S991 C.C.LOCK
DEW SENSOR
D991 TAPE LED
TAPE TOP SENSOR
H992
T REEL FG SENSOR
Q991
Q992
H991
S REEL FG SENSOR
TAPE END SENSOR
S992
HIB MP
ME/MP
REC PROOF
LOAD.UN LOAD
MSW A-C
C.C. LOCK
DEW (+)
TAPE TOP
T REEL (+),(−)
S REEL (+),(−)
TAPE END
TAPE LED(K)
HIB MP SW
ME/MP SW
REC PROOF SW
IC206
LOADING MOTOR DRIVE
LOAD UN LOAD
IC203 (1/2)
DEW DETECT
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
DEW
TAPE TOP
T REEL FG
S REEL FG
TAPE END
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
VIDEO AUDIO SERVO
CONTROL SIG
CLOG, SP/LP DET
IC203 (1/2)
D PG.D FG
WAVE SHAPER
DRUM PG. DRUM FG
(See Page 172)
DD-54 BOARD (1/2)
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
M MOTOR
STAN MOTOR
M
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC204
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
IC205 (1/2)
LPF
LPF
DRUM ERROR
CAP ERROR
DPUM PWM
CAP PWM
CAP FG
REF PILOT
ATF ERROR
RF SWP
1/2 RF SWD
IC901
EEPROM
IC903
CHARACTER GENERATOR
IC905
CHIP SELECT
C.C.LOCK
MODE CONTROL (MASTER)
LCD PANNEL
DATE. TIME AUTO LOCK SW
FOCUS LOCK, ANOI 3. BRIGHT A,B
SIRCS 2
SIRCS 1
VTR MODE SW
CAM + STBY. START STOP SW
ANO 0, 1
EJECT
VTR DD ON
CAM DD ON
BACK UP VDD
IC902
BACK UP VDD SWITCH
L1 3V
IC904
LANC OUT
LANC IN
LANC I/O
CF-33 BOARD
(See Page 139)
MANU FOCUS 1
MANU FOCUS 2
RV101
MANUAL FOCUS
S115,109,108,104,105,106,101,102,103,110,
CAMERA FUNCTION SWITCH
S114,112,113
POWER,STAND BY START/STOP
S111
EJECT SWITCH
(See Page 139)
FK-33 BOARD
RV201
ZOOM SW
ZOOM SW
S202–211,216
VTR FUNCTION SWITCH
L13V
LITHIUM BATTERY
(See Page 140)
RE-23 BOARD
IC251
SIRCS2
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
IC201
SIRCS1
REMOTE CONTROL RECEIVER
DD-54 BOARD (1/2)
(See Page 172)
CAM 5V CONT
IC351
15V
−8.5V
CAMERA DC/DC CONVERTER
VTR DC/DC CONVERTER
CAM 15V
CAM −8.5V
CAM 5V
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
VTR DD ON
FVF UNREG
VTR UNREG
CAM UNREG
VTR UNREG
MOTOR UNREG
(See Page 171)
FU-111 BOARD
MAIN BATTERY
EZ-3 BOARD (1/2)
(See Page 160)
LANC SIG
ACV UNREG
IC101
BATT GND
BATTERY CHARGE CONTROL
BATT/EXT
LANC SIG
EZ Y
EZ C
Y/C MIX
AUDIO OUT L.R
CN113 EASY CONECTOR
EVF OUT
EVF OUT
ELECTRIC VIEW FINDER
VF-56 BOARD
(See Page 168)
T501
H OUT
VIDEO AMP
DY
H
V
DH1, DH2
HV
H
DV1, DV2
G1
V901 CRT
VIDEO AMP SYNC SEP V OUT H DRIVE
IC901
VF-55 BOARD
(See Page 167)

3-3. CAMERA BLOCK DIAGRAM


(See Page 105)
ZOOM LENS UNIT
M904 IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
MR SENSOR
ZOOM SENSOR
LD-63 BOARD
(See Page 103)
IC754 (1/2) IRIS DRIVE
IC754 (1/2)
IC755 (1/4) HALL BIAS CONTROL
IC755 (1/4) HALL AMP
IC755 (1/4) HALL GAIN CONTROL
IC755 (1/4)
IC757 FOCUS DRIVE
IC753 (1/2) BUFFER
IC753 (1/2) MR SENSOR AMP
IC756 FOCUS CONT
IC751 AUTO FOCUS CONTROL
IC758 ZOOM MOTOR DRIVE
IC752 ZOOM MOTOR PRE DRIVE
LPF
Q751
Q752
X751 12MHz
CN751
CN752
IC751 (40) CAMERA REC
IC751 (74) CAMERA REC
IC758 (4),(6),(15),(17)
With the ZOOM button pressed.
IC758 (8),(9) With the ZOOM button pressed.
IC721 (3),(4) CAMERA REC
IC721 (1),(2) CAMERA REC
CD-101 BOARD
(See Page 92)
IC721 CCD IMAGER
Q723, 724 BUFFER
Q721, 722 VSUB REG
Q721, 722 23V RECT
Q724 (E) CAMERA REC
IC721 (13) CAMERA REC
IC721 (16) CAMERA REC
IC721 (15) CAMERA REC
CN601
VC-129 BOARD (1/4)
(See Page 94)
IC601 (5),(7) CAMERA REC
IC601 (3),(4) CAMERA REC
IC601 (6),(8) CAMERA REC
IC602 (53) CAMERA REC
IC602 (47) CAMERA REC
IC603 (21),(22) CAMERA REC
IC601 V DRIVE
IC602 TIMING GENERATOR
Q601 BUFFER
X601 28.375MHz
CT601 DRIVE OSCIRATION
IC654 D/A CONVERTER (EVR)
IC651 EEPROM
CN651
CN652
SYSTEM CONTROL (VC-129)
FOR CHECK
IC653 (36)
IC653 (73) CAM


VC-129 BOARD (1/4)
(See Page 94)
IC601 V DRIVE
IC602 TIMING GENERATOR
IC603 (1/2) SIGNAL SEPARATION AGC/IRIS CONTROL
IC603 (1/2) A/D BIAS AMP
IC604 A/D CONVERTER
IC659 CAMERA CORE (DIGITAL CAMERA PROCESS)
IC654 D/A CONVERTER (EVR)
IC653 CAMERA CONTROL
IC656 OPD
IC651 EEPROM
IC660 SYNC GENERATOR
IC661
Q601 BUFFER
Q603 BUFFER
X601 28.375MHz
CT601 DRIVE OSCIRATION
X651 16MHz
IC601 ⑤,⑦ CAMERA REC
IC601 ③,④ CAMERA REC
IC601 ⑥,⑧ CAMERA REC
IC602 (53) CAMERA REC
IC603 (21),(22) CAMERA REC
IC602 (47) CAMERA REC
IC602 (37) CAMERA REC
IC602 (57) CAMERA REC
IC603 (32) CAMERA REC
IC604 (39),(40) CAMERA REC
IC603 ⑤,(24) CAMERA REC
IC604 ⑧-⑫ CAMERA REC
IC659 (82) CAMERA REC
IC659 (66) CAMERA REC
IC604 ①-⑤ CAMERA REC
IC602 ① CAMERA REC
IC602 (59) CAMERA REC
IC602 (60) CAMERA REC
IC659 (67) CAMERA REC
IC653 (36),(37) CAMERA REC
IC653 ③,⑨ CAMERA REC
IC653 (73) CAMERA REC
IC660 ⑭ CAMERA REC
IC660 (63) CAMERA REC
14.1875MHz
28.375MHz
14.318MHz
4.43MHz
16MHz
CN601
CN651
CN652
W721
FOR CHECK
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
INTER FACE
TRAP
DL
LPF
BPF
CORING
APCN LEVEL
VAPCN GAIN
1H DERAY
DELAY
AFC HALF H KILLER SPEED DETECT PHASE COMP
VCO 4FSC (VTR) 5/4 (PAL CAM) OFF(NTS.CAM)
PHASE COMP
1/4 (VTR) 1/3 (PAL.CAM)
SYS RESET

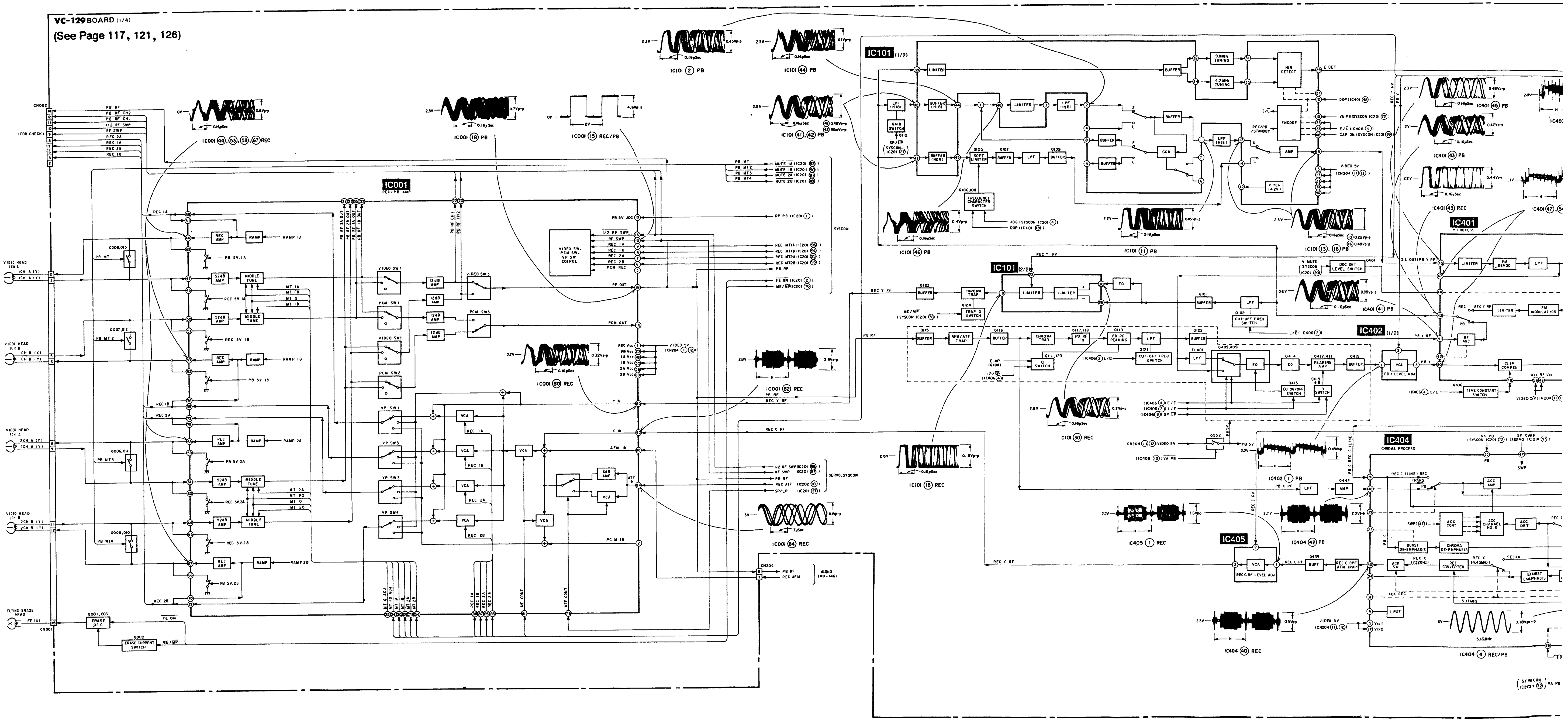

IC603 (1/2)
A/D BIAS AMP
CLAMP
DRIVE
C LAMP
VRE
VRT
CLP I
AD CK
AGC CONT 1
AGC CONT 2
Q603
BUFFER
CS OUT
CSSL
A/D REF
IC604
A/D CONVERTER
V IN H
V IN L
V REF BS
V REF B
V REF T
V REF TS
EVA
STBY
D9 (MSB)
D0 (MSB)
CLK
ADCK
D Vcc
A Vcc
D Vcc 2
D5V
IC659
CAMERA CORE
(DIGITAL CAMERA PROCESS)
DE
1H DERAY
DELAY
TRAP
DL
HORIZONTAL APERTURE COMPENSATOR
APCN LEVEL
BPF
GAIN SELECT
HAP CG1
HAP CG2
DETALE
ROM
VH GAIN
VH SL ICE
CORING
LPF
VAPCN GAIN
VERTICAL APERTURE COMPENSATOR
R MATRIX B MATRIX
Gr, Gb WHITE BALANCE
CHROMA GAMMA
GAMMA ROM
R.B WHITE BALANCE
R-G/B-G
R-Y/B-Y
EFECT
SFC
GAIN
BURST BLK ADD
ENCODER
PAL NTSC
CDL
VDC
D/A CONV
FADER OUT LEVEL
FADER
SET UP
V GAMMA
SOLAR
WHIUTE CLIP
SYNK BLK CHRACTER MIX
DOY 7 ~ DOY0
10 Y
V RF Y
V REFY
C SYNK
C BLK
C VOW
C VOB
TIY9 ~ TIY0
V TMG
H HLD
H HLB
BU SW
TIC9 ~ TIC0
CDIS
DOC7 - DOC0
10C
V RF C
VREF C
CS ST CTNG
BF
LALT
INTER FACE
CORE SO
CS CORE
CAM SI
CAM SCK
CORE RESET
AJST
MCK
CL
YCK
ADCK
HD
VD
DEF
VHL D
Vdd
AVDC
D4V
ID
CAM ON
IC603 ㉜ CAMERA REC
IC603 ⑤, ㉔ CAMERA REC
IC604 ㊴, ㊵ CAMERA REC
IC604 ⑧ - ⑫ CAMERA REC
IC604 ① - ⑤ CAMERA REC
IC659 ㊷ CAMERA REC
IC659 (66) CAMERA REC
IC659 (67) CAMERA REC
IC659 ㊾ CAMERA REC
IC659 (62) CAMERA REC
IC659 ㉘ CAMERA REC
IC659 (65) CAMERA REC
IC602 (60) CAMERA REC
IC653 ③, ⑨ CAMERA REC
IC660 ⑭ CAMERA REC
IC660 (63) CAMERA REC
IC660 ㉟ CAMERA REC
3.6Vp-p
1.4μsec
1.6Vp-p
1.7V
1.5Vp-p
4.8Vp-p
3.8Vp-p
1.9V
14.318MHz
4Vp-p
4V
0.4V
0.36Vp-p
1Vp-p
2.6Vp-p
③ 4.7Vp-p
⑨ 3.8Vp-p
1.4Vp-p
4.43MHz
3.8V
3.8Vp-p
0V
H
V
Q657
BUFFER
FL651
LPF
Q658
Q656
4.43MHz BPF
Q659
CAM Y
CAM C
V I/O
VIDEO
CN651
FOR CHECK
Y OUT
C OUT
VIDEO OUT
VTR SYNC
FSC
REG H
IC660
SYNC GENERATOR
CLP
PB SYNC
AFC
HALF H KILLER
SPEED DETECT
PHASE COMP
PDF
XP DF
ENVD
FDI
FDO
AFC I
602TH VCO
AFC O
LCK
VTR
CAM
SYNC GENERATOR
SET UP
REG H
FLD
C SYNC
LALT
C BLK
1/3 COUNTER
BFSC
TCK
MOSAIC HOLD TIMING
H HLD
V HLD
POLAITY
CB CK
PROG DERAY
CG H
760H
510H
760H : 760H CCD SYSTEM
510H : 510H CCD SYSTEM
1/2(510H.CAM VTR)
1/3(760H.CAM)
IC661
FSC 2
FS I
CF O
1/4 (VTR)
1/5 (PAL.CAM)
1/4
PHASE COMP
Vcc
A VD 3
A VD 2
A VD 1
Vcc (4V)
R656
VAR I
PLL I
PLL O
VCO
4FSC (VTR)
5/4 (PAL.CAM)
OFF (NTS.CAM)
PD I
PDP
NTSC.VTR
PAL.CAM
3FSO
3FSI
PAL.VTR
VCK
XRE S
VTR SCK
S IN
CS SG
CONTROL DATA LATCH
PB TITLE COLOR DATA
CG V
PB V
CVOW
CVOB
SVOW
SVOB
EVOW
EVOB
CRTC MASC
V MCN
V BLK
VB
VG
VR
PB TITLE CHROMA MODULRATOR D/A CONVERTER
PBTC
VREF
TEST
PBI
IC656
OPD
CLP I
CL
MCK
ID
CS CAM OPD
OPD RESET
AF BUSY
NT/PAL
AF SCK
AF SO
AF SI
CS AF OPD
CAM SCK
CAM SCI
CAM SCO
AD 9 ~ AD 0
CS TG
CORE RESET
CS CORE
CAM VD
AJST
CS TAI
SYS RESET
CGH
CAM VD
PB V
FLD
TG STBY I
CS SG
CS TAI
VTR SO
VTR SI
VTR SCK
SYS RESET
L CAM ON
(IC201 ⑨)
(IC903 (78))
(IC903 ㊱)
(IC903 ㊳)
(IC903 (79))
(IC903 (75))
(IC903 (77))
(IC903 ㉔)
(IC903 (80))
SYSCON
PBV
Q205, 204 (1/2)
203 (1/2)
CAM 15V
CAM -8.5V
SW
Q204 (1/2)
Q203 (1/2)
CN204
CAM -8.5V
CAM 5V
CAM 15V
D4V
D5V
-8.5V
15V
POWER
(DD-54)

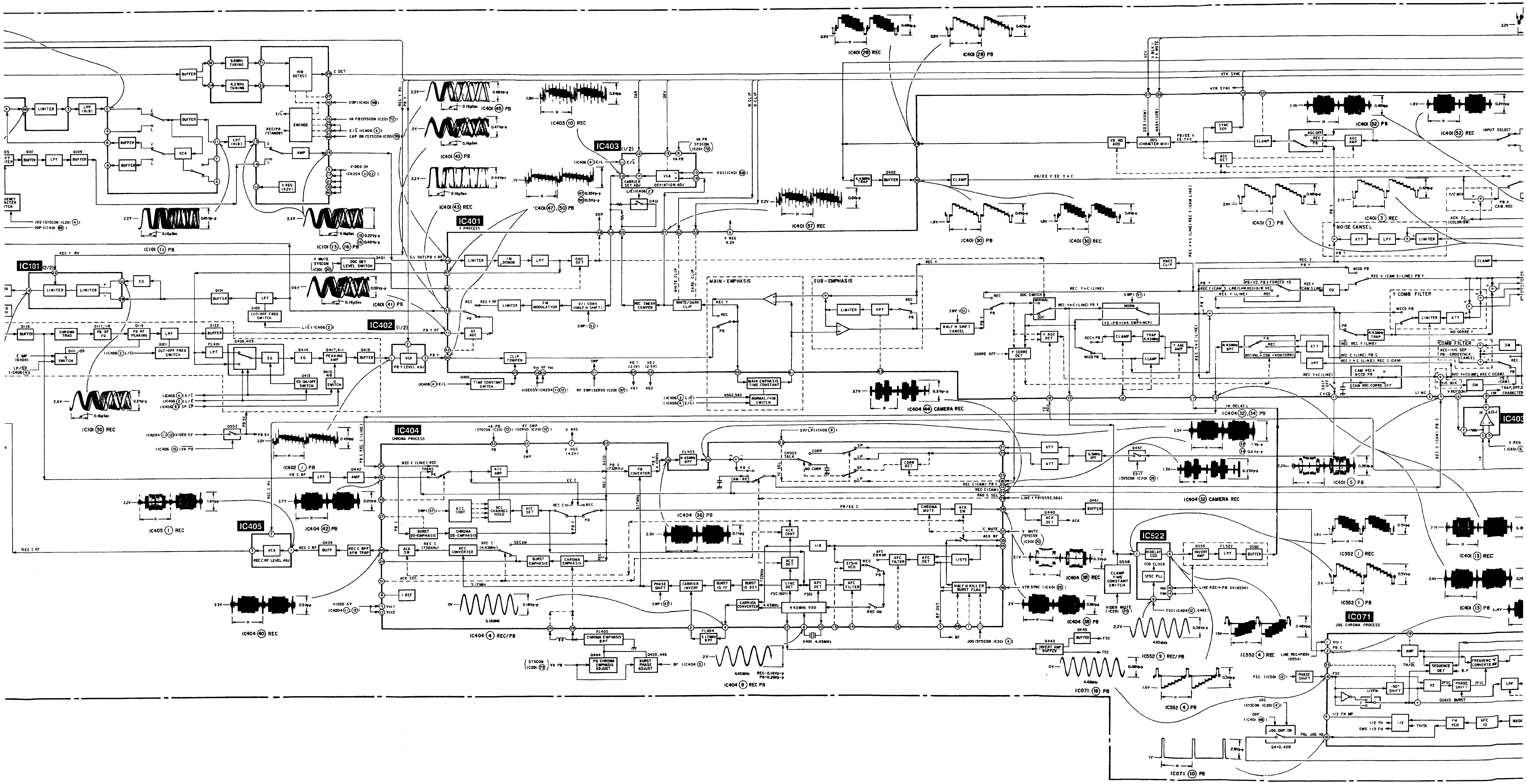
3-4. CAMERA MICRO PROCESSOR (VC-129 BOARD IC653: MC68HC11FU) PIN FUNCTIONS

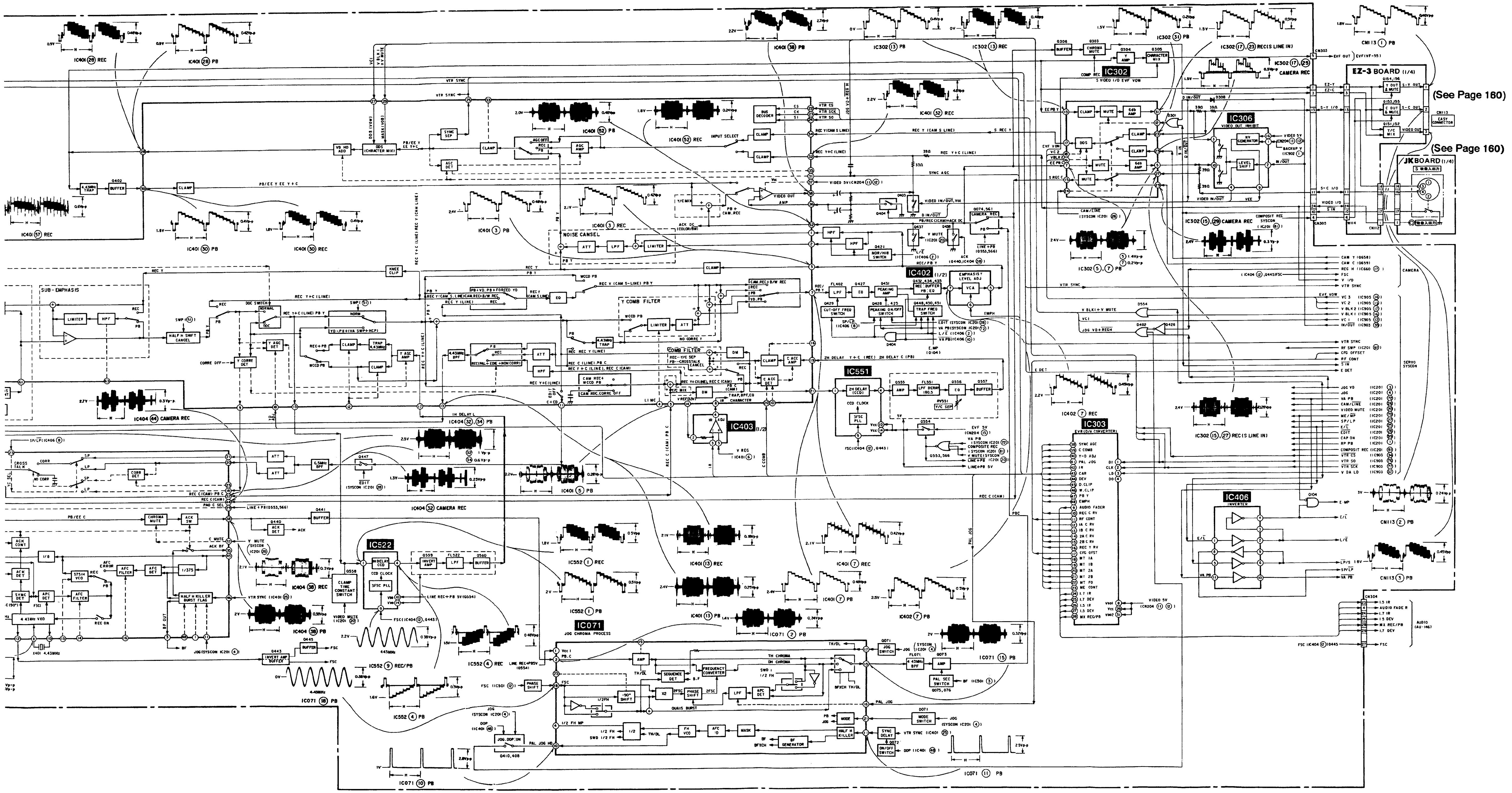
Pin No.	Signal Name	I/O	Function
1	VTR SI	I	Serial data input from mode control micro processor (VC-129 board IC903).
2	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock for mode control micro processor.
3	$\overline{\text{CAM CS}}$	I	Chip select signal from mode control micro processor.
4			Not used.
5			
6			
7			
8			
9	VD	I	V SYNC from SYNC generator (VC-129 board IC660).
10	AJST	I	Adjusting timing pulse input from SYNC generator. Normally "H".
11			Not used.
12	VDD		+5V power supply.
13	VSS		GND
14			Not used.
15			
16			
17			
18			
19			
20			
21	EEPROM BUSY	I	BUSY signal from EEPROM (VC-129 board IC651). Normally "H". "L" pulse during data reading/writing.
22			Not used.
23	IRIS PWM	O	Iris control signal. 16 μsec. cycle PWM signal.
24			Not used.
25			
26			
27			
28			
29			
30	XIRQ		Connected to +5V.
31	VDD		+5V power supply.
32	VSS		GND
33			Not used.
34			
35			
36	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
37	CAM SO	O	Serial data output.
38	CAM SI	I	Serial data input.
39			Not used.
40			
41	VDD		+5V power supply.
42			Not used. Connected to GND.
43			
44			
45			

Pin No.	Signal Name	I/O	Function
46			Not used. Connected to GND.
47			
48			
49	HALL A/D	I	Hall voltage. Approx. 1V (iris open) to approx. 3.6V (iris close).
50	VRL	I	A/D port reference voltage (LOW). Connected to GND.
51	VRH	I	A/D port reference voltage (HIGH). Connected to +5V.
52	VSS		GND
53	$\overline{\text{AF COSMO RST}}$	O	Reset signal to auto focus micro processor (LD-63 board IC751). Normally "H". "L" when reset.
54			Not used.
55			
56	EEPROM LOCK	O	EEPROM (VC-129 board IC651) writing prohibition signal. Normally "H".
57	$\overline{\text{OPD RESET}}$	O	Reset signal to OPD (VC-129 board IC656). "H" in camera mode, "L" in VTR mode.
58			Not used.
59	$\overline{\text{CAM ON}}$	O	A/D converter (VC-129 board IC604) on/off signal. Normally "L".
60	$\overline{\text{NTSC}}$	O	NTSC: "L", PAL: "H".
61	IRQ		Connected to +5V.
62	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator (VC-129 board IC602).
63	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (VC-129 board IC659).
64	$\overline{\text{CS CAM OPD}}$	O	Chip select signal to OPD (VC-129 board IC656).
65	D/A STB	O	Strobe signal to camera section EVR (VC-129 board IC654).
66	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VC-129 board IC651).
67	$\overline{\text{CS AF}}$	O	Chip select signal to auto focus micro processor (LD-63 board IC751).
68			Not used.
69	$\overline{\text{CORE RESET}}$		Reset signal to camera core (VC-129 board IC659). Normally "H". "L" when reset.
70	VSS		GND
71	VDD		+5V power supply.
72			Not used.
73	EXTAL	I	16 MHz clock oscillation circuit.
74	XTAL	O	
75	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VC-129 board IC903). Normally "H". "L" when reset.
76	MODB		Connected to +5V.
77	MODA		Connected to GND.
78	RXD		Not used.
79	TXD		Not used.
80	VTR SO	O	Serial data output to mode control micro processor (VC-129 board IC903).

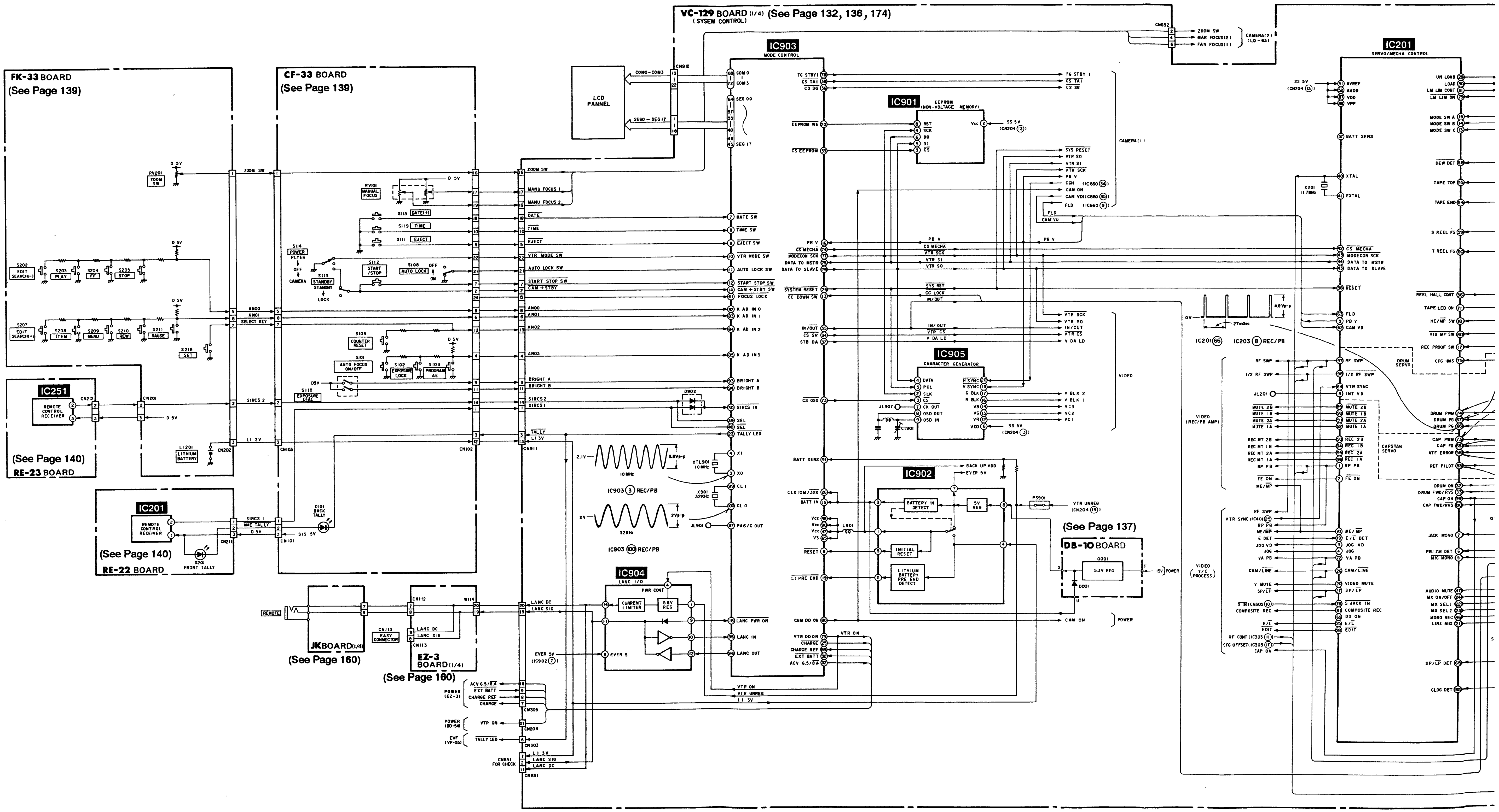
3-5. VIDEO BLOCK DIAGRAM

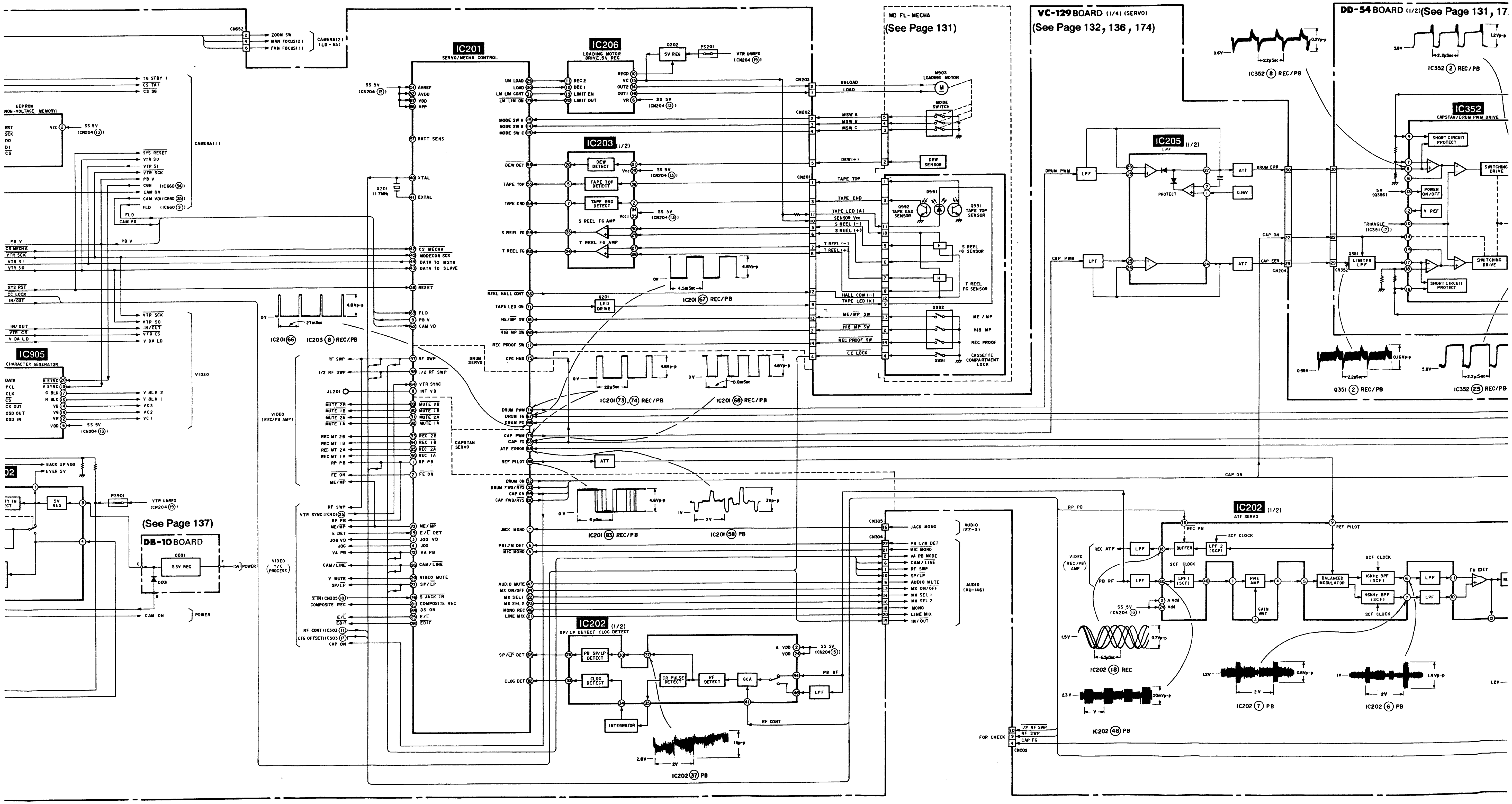

VC-129 BOARD (1/4)
(See Page 117, 121, 126)
CN002
(FOR CHECK)
PB RF
REC 1A
REC 1B
REC 2A
REC 2B
RF SWP
IC001 (44),(53),(56),(67) REC
IC001 (18) PB
IC001 (15) REC/PB
IC001
REC/PB AMP
VIDEO HEAD
CH A
CH B
2CH A
2CH B
FLYING ERASE HEAD
CN001
REC AMP
RAMP
52dB AMP
MIDDLE TUNE
12dB AMP
VIDEO SW 1
VIDEO SW 2
VIDEO SW 3
PCM SW 1
PCM SW 2
PCM SW 3
VP SW 1
VP SW 2
VP SW 3
VP SW 4
VCA
6dB AMP
VIDEO SW, PCM SW, VP SW CONTROL
ERASE OSC
ERASE CURRENT SWITCH
FE ON
ME/MP
PB 5V JOG
RF OUT
PCM OUT
Y IN
C IN
AFM IN
PC M IN
RF SWP
SYSCON
SERVO, SYSCON
IC001 (80) REC
IC001 (82) REC
IC001 (84) REC
CN304
AUDIO (AU-146)
IC101 (2) PB
IC101 (44) PB
IC101 (41),(42) PB
IC101 (46) PB
IC101 (11) PB
IC101 (13),(16) PB
IC101 (50) REC
IC101 (18) REC
IC101 (1/2)
IC101 (2/2)
LIMITER
BUFFER
LPF
GAIN SWITCH
SOFT LIMITER
FREQUENCY CHARACTER SWITCH
9.5MHz TUNING
4.3MHz TUNING
NIB DETECT
ENCODE
GCA
AMP
V REG
CHROMA TRAP
TRAP Q SWITCH
AFM/ATF TRAP
CHROMA TRAD
PB RF FO
PB RF PEAKING
CUT-OFF FREQ SWITCH
EQ
EQ ON/OFF SWITCH
Q SWITCH
PEAKING AMP
DOC DET LEVEL SWITCH
IC401
Y PROCESS
IC401 (45) PB
IC401 (43) PB
IC401 (43) REC
IC401 (41) PB
IC402 (1/2)
LIMITER
FM DEMOD
FM MODULATOR
RF AGC
CLIP COMPEN
TIME CONSTANT SWITCH
VCA
PB Y LEVEL ADJ
IC404
CHROMA PROCESS
IC402 (1) PB
IC404 (42) PB
IC404 (40) REC
IC404 (4) REC/PB
IC405
IC405 (1) REC
REC C RF LEVEL ADJ
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
REC C BPF AFM TRAP
ACK SW
REC CONVERTER
BURST EMPHASIS
SECAM
1 REF
VIDEO 5V
(SYSCON IC201 (72)) VA PB

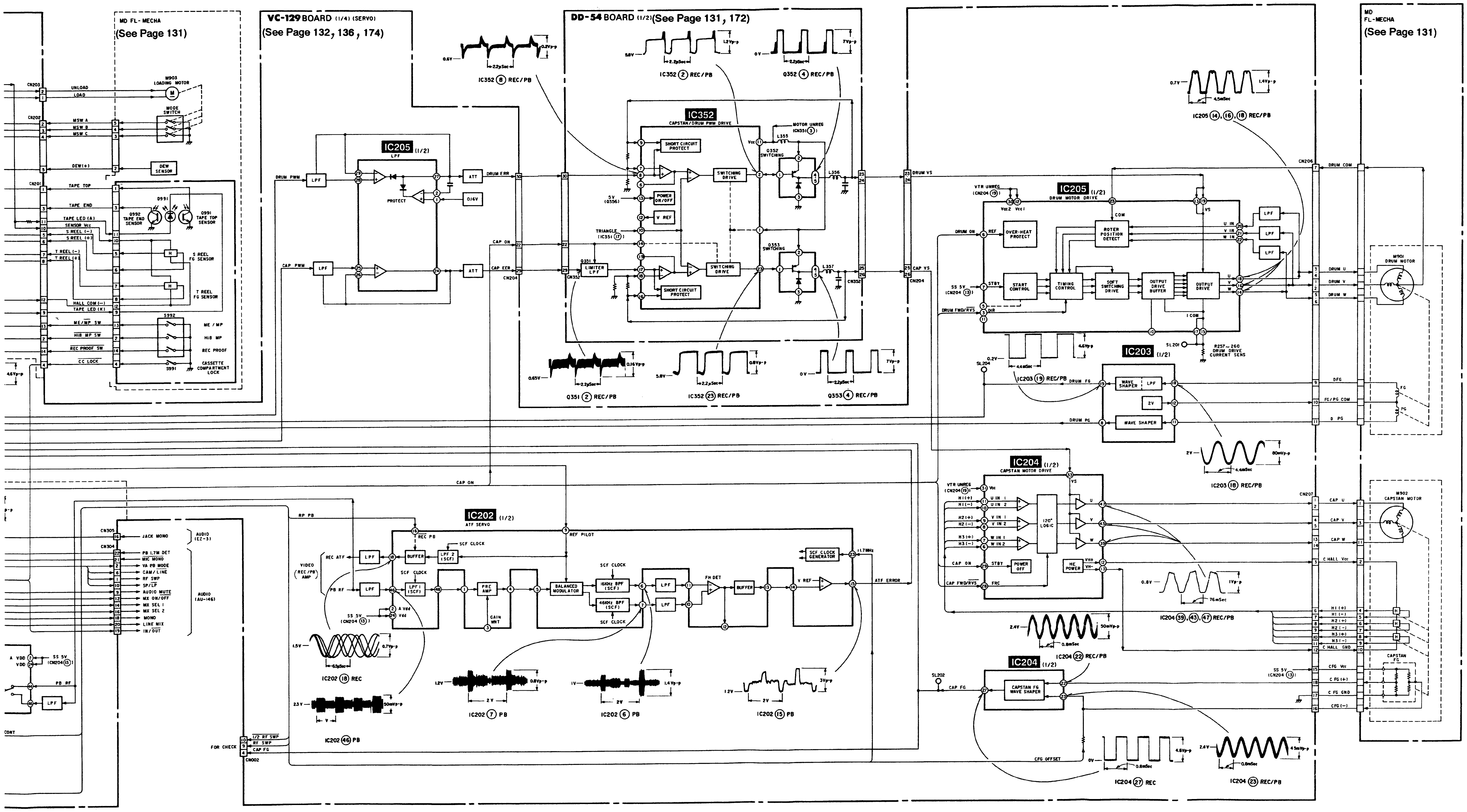

IC101 (2/2)
LIMITER
LPF (HIB)
BUFFER
9.8MHz TUNING
4.2MHz TUNING
HIB DETECT
ENCODE
GCA
AMP
V REG (4.2V)
IC101 (11) PB
IC101 (30) REC
IC401 Y PROCESS
IC402 (1/2)
IC403 (1/2)
CARRIER SET ADJ
VCA
DEVIATION ADJ
FM DEMOD
DOC DET
DOC DET LEVEL SWITCH
FM MODULATOR
H/I CONV (HALF H SHIFT)
REC SMEAR COMPEN
WHITE/DARK CLIP
CLIP COMPEN
TIME CONSTANT SWITCH
PB Y LEVEL ADJ
RF AGC
CUT-OFF FREQ SWITCH
PEAKING AMP
EQ
EQ ON/OFF SWITCH
MAIN-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
NORMAL/HIB SWITCH
SUB-EMPHASIS
LIMITER
HPF
HALF H SHIFT CANCEL
4.43MHz TRAP
BUFFER
CLAMP
KNEE CLIP
VD HD ADD
DOS (CHARACTER MIX)
SYNC SEP
AGC AMP
AGC DET
NOISE CANSEL
ATT
LPF
Y COMB FILTER
COMB FILTER
Y AGC DET
Y CORRE DET
IC404 CHROMA PROCESS
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
ACK SW
REC CONVERTER
BURST EMPHASIS
CHROMA EMPHASIS
PB CONVERTER
4.43MHz BPF
CROSS TALK
NO CORR
CORR DET
CHROMA MUTE
ACK SW
ACK CONT
ACK DET
PHASE SHIFT
CARRIER INVERT
BURST ID FF
BURST ID DET
SYNC DET
APC DET
AFC FILTER
AFC DET
375fH VCO
1/375
1/8
CARRIER CONVERTER
4.43MHz VXO
HALF H KILLER BURST FLAG
I REF
CHROMA EMPHASIS BPF
PB CHROMA EMPHASIS ADJUST
BURST PHASE ADJUST
5.17MHz BPF
IC405
VCA
REC C RF LEVEL ADJ
REC C BPF AFM TRAP
BUFF
IC522
1H DELAY CCD
CCD CLOCK
3fSC PLL
CLAMP TIME CONSTANT SWITCH
INVERT AMP
LPF
BUFFER
INVERT AMP BUFFER
IC071
JOG CHROMA PROCESS
SEQUENCE DET
FREQUENCY CONVERTER
PHASE SHIFT
-90° SHIFT
X2
QUAIS BURST
FH VCO
AFC ID
JOG DOP ON
IC401 (28) REC
IC401 (28) PB
IC401 (45) PB
IC401 (43) PB
IC401 (43) REC
IC401 (47),(50) PB
IC401 (41) PB
IC403 (10) REC
IC401 (57) REC
IC401 (30) PB
IC401 (50) REC
IC401 (3) PB
IC401 (3) REC
IC401 (52) PB
IC401 (52) REC
IC404 (44) CAMERA REC
IC404 (32),(34) PB
IC404 (32) CAMERA REC
IC401 (5) PB
IC402 (1) PB
IC404 (42) PB
IC405 (1) REC
IC404 (36) PB
IC404 (40) REC
IC404 (4) REC/PB
IC404 (8) REC PB
IC404 (38) REC
IC404 (38) PB
IC552 (1) REC
IC552 (1) PB
IC552 (4) REC
IC552 (4) PB
IC552 (9) REC/PB
IC071 (18) PB
IC071 (10) PB
IC401 (13) REC
IC401 (13) PB


EZ-3 BOARD (1/4)
(See Page 160)
JK BOARD (1/4)
(See Page 160)
IC302
IC306
IC402 (1/2)
IC551
IC403 (1/2)
IC303
IC406
IC522
IC071
NOISE CANSEL
Y COMB FILTER
COMB FILTER
SUB-EMPHASIS
INVERTER
JOG CHROMA PROCESS
CAMERA
SERVO SYSCON
AUDIO (AU-146)
CN113 ① PB
CN113 ② PB
CN113 ③ PB
IC401 ㉘ REC
IC401 ㉘ PB
IC401 ㊳ PB
IC401 ㊾ REC
IC401 ㊾ PB
IC401 ㉝ REC
IC401 ㉝ PB
IC401 ⑤ PB
IC401 ⑬ REC
IC401 ⑬ PB
IC401 ⑦ REC
IC401 ⑦ PB
IC401 ③ PB
IC302 ⑬ PB
IC302 ⑬ REC
IC302 ㉛ PB
IC302 ⑰, ㉕ REC(S LINE IN)
IC302 ⑰, ㉕ CAMERA REC
IC302 ⑮, ㉙ CAMERA REC
IC302 ⑤, ⑦ PB
IC302 ⑮, ㉗ REC(S LINE IN)
IC402 ⑦ REC
IC402 ⑦ PB
IC404 ㊹ CAMERA REC
IC404 ㉜, ㉞ PB
IC404 ㉜ CAMERA REC
IC404 ㊳ REC
IC404 ㊳ PB
IC552 ① REC
IC552 ① PB
IC552 ④ REC
IC552 ④ PB
IC552 ⑨ REC/PB
IC071 ② PB
IC071 ⑮ PB
IC071 ⑱ PB
IC071 ⑪ PB
IC071 ⑩ PB

3-6. SERVO/SYSTEM CONTROL BLOCK DIAGRAM


VC-129 BOARD (1/4) (See Page 132, 136, 174)
(SYSEM CONTROL)
FK-33 BOARD
(See Page 139)
CF-33 BOARD
(See Page 139)
LCD PANNEL
IC903
MODE CONTROL
IC901
EEPROM (NON-VOLTAGE MEMORY)
IC905
CHARACTER GENERATOR
IC902
IC904
LANC I/O
IC201
SERVO/MECHA CONTROL
IC251
REMOTE CONTROL RECEIVER
(See Page 140)
RE-23 BOARD
IC201
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
D201 FRONT TALLY
D101 BACK TALLY
JK BOARD (1/4)
(See Page 160)
EZ-3 BOARD (1/4)
(See Page 160)
(See Page 137)
DB-10 BOARD
Q001
5.3V REG
CAMERA(2) (LD-63)
ZOOM SW
MAN FOCUS(2)
FAN FOCUS(1)
S202 EDIT SEARCH(−)
S203 PLAY
S204 FF
S205 STOP
S207 EDIT SEARCH(+)
S208 ITEM
S209 MENU
S210 REW
S211 PAUSE
S216 SET
RV201 ZOOM SW
RV101 MANUAL FOCUS
S115 DATE(4)
S119 TIME
S111 EJECT
S114 POWER
PLYER
OFF
CAMERA
S113 STANDBY
LOCK
S112 START/STOP
S108 AUTO LOCK
S105 COUNTER RESET
S101 AUTO FOCUS ON/OFF
S102 EXPOSURE LOCK
S103 PROGRAM AE
S110 EXPOSURE DIAL
L1201 LITHIUM BATTERY
BATTERY IN DETECT
5V REG
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
CURRENT LIMITER
5.6V REG
PWR CONT
10MHz
32KHz
IC903 ③ REC/PB
IC903 ⑩⓪ REC/PB
IC201 ⑥⑥
IC203 ⑧ REC/PB
27mSec
4.8Vp-p
VIDEO
VIDEO (REC/PB AMP)
VIDEO (Y/C PROCESS)
CAPSTAN SERVO
DRUM SERVO
CAMERA(1)
POWER
REMOTE


IC201
SERVO/MECHA CONTROL
IC206
LOADING MOTOR DRIVE, 5V REG
IC203 (1/2)
DEW DETECT
TAPE TOP DETECT
TAPE END DETECT
S REEL FG AMP
T REEL FG AMP
IC905
CHARACTER GENERATOR
IC202 (1/2)
SP/LP DETECT CLOG DETECT
PB SP/LP DETECT
CLOG DETECT
CR PULSE DETECT
RF DETECT
GCA
INTEGRATOR
LPF
MD FL-MECHA
(See Page 131)
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q992 TAPE END SENSOR
D991
Q991 TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
S992
ME/MP
Hi8 MP
REC PROOF
S991
CASSETTE COMPARTMENT LOCK
VC-129 BOARD (1/4) (SERVO)
(See Page 132, 136, 174)
IC205 (1/2)
LPF
PROTECT
ATT
DD-54 BOARD (1/2) (See Page 131, 17
IC352
CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
SWITCHING DRIVE
POWER ON/OFF
V REF
LIMITER LPF
Q351
IC202 (1/2)
ATF SERVO
BUFFER
LPF 2 (SCF)
LPF 1 (SCF)
PRE AMP
GAIN WNT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
FM DET
(See Page 137)
DB-10 BOARD
Q001
5.3V REG
D001
5V REG
PS901
PS201
Q202
5V REG
Q201
LED DRIVE
X201
CAMERA(2) (LD-63)
CAMERA(1)
VIDEO
VIDEO (REC/PB AMP)
VIDEO (Y/C PROCESS)
DRUM SERVO
CAPSTAN SERVO
AUDIO (EZ-3)
AUDIO (AU-146)
POWER
FOR CHECK
EEPROM NON-VOLTAGE MEMORY
IC201 (66) IC203 (8) REC/PB
IC201 (67) REC/PB
IC201 (73), (74) REC/PB
IC201 (68) REC/PB
IC201 (83) REC/PB
IC201 (58) PB
IC202 (37) PB
IC352 (8) REC/PB
IC352 (2) REC/PB
Q351 (2) REC/PB
IC352 (23) REC/PB
IC202 (18) REC
IC202 (46) PB
IC202 (7) PB
IC202 (6) PB


MD FL-MECHA
(See Page 131)
VC-129 BOARD (1/4) (SERVO)
(See Page 132, 136, 174)
DD-54 BOARD (1/2)(See Page 131, 172)
MD FL-MECHA
(See Page 131)
IC205 (1/2)
IC352
CAPSTAN/DRUM PWM DRIVE
IC205 (1/2)
DRUM MOTOR DRIVE
IC203 (1/2)
IC204 (1/2)
CAPSTAN MOTOR DRIVE
IC204 (1/2)
IC202 (1/2)
ATF SERVO
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q992 TAPE END SENSOR
D991
Q991 TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
S992
S991
ME / MP
Hi8 MP
REC PROOF
CASSETTE COMPARTMENT LOCK
UNLOAD
LOAD
MSW A
MSW B
MSW C
DEW (+)
TAPE TOP
TAPE END
TAPE LED (A)
SENSOR Vcc
S REEL (−)
S REEL (+)
T REEL (−)
T REEL (+)
HALL COM (−)
TAPE LED (K)
ME/MP SW
Hi8 MP SW
REC PROOF SW
CC LOCK
CN203
CN202
CN201
DRUM PWM
CAP PWM
LPF
ATT
PROTECT
0.16V
DRUM ERR
CAP ON
CAP ERR
CN204
IC352 ⑧ REC/PB
IC352 ② REC/PB
Q352 ④ REC/PB
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
TRIANGLE (IC351 ⑦)
LIMITER LPF
Q351
SWITCHING DRIVE
MOTOR UNREG (CN351 ③)
L355
L356
L357
Q352 SWITCHING
Q353 SWITCHING
CN352
Q351 ② REC/PB
IC352 ㉓ REC/PB
Q353 ④ REC/PB
DRUM VS
CAP VS
IC205 ⑭, ⑯, ⑱ REC/PB
VTR UNREG (CN204 ⑲)
DRUM ON
REF
OVER-HEAT PROTECT
ROTER POSITION DETECT
START CONTROL
TIMING CONTROL
SOFT SWITCHING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
DRUM FWD/RVS
SS 5V (CN204 ⑬)
SL201
R257 ~ 260 DRUM DRIVE CURRENT SENS
SL204
IC203 ⑲ REC/PB
DRUM FG
WAVE SHAPER
DRUM PG
IC203 ⑱ REC/PB
CN206
DRUM COM
DRUM U
DRUM V
DRUM W
M901 DRUM MOTOR
DFG
FG/PG COM
D PG
CN207
M902 CAPSTAN MOTOR
CAP U
CAP V
CAP W
C HALL Vcc
H1 (+)
H1 (−)
H2 (+)
H2 (−)
H3 (+)
H3 (−)
C HALL GND
CFG Vcc
C FG (+)
C FG GND
CFG (−)
CAPSTAN FG
120° LOGIC
POWER OFF
HE POWER
CAP FWD/RVS
IC204 ㊴, ㊸, ㊼ REC/PB
IC204 ㉒ REC/PB
CAPSTAN FG WAVE SHAPER
SL202
CAP FG
CFG OFFSET
IC204 ㉗ REC
IC204 ㉓ REC/PB
CAP ON
RF PB
REC PB
SCF CLOCK
REF PILOT
REC ATF
BUFFER
LPF 2 (SCF)
LPF 1 (SCF)
PRE AMP
GAIN UNIT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
FH DET
SCF CLOCK GENERATOR
V REF
ATF ERROR
VIDEO (REC/PB) AMP
PB RF
IC202 ⑱ REC
IC202 ⑦ PB
IC202 ⑥ PB
IC202 ⑮ PB
IC202 ㊻ PB
CN305
CN304
JACK MONO
AUDIO (EZ-3)
PB 1.7M DET
MIC MONO
VA PB MODE
CAM/LINE
RF SWP
SP/LP
AUDIO MUTE
MX ON/OFF
MX SEL 1
MX SEL 2
MONO
LINE MIX
IN/OUT
AUDIO (AU-146)
A VDD
VDD
SS 5V (CN204 ⑬)
PB RF
FOR CHECK
1/2 RF SWP
RF SWP
CAP FG
CN002
CONT

3-7. AUTO FOCUS MICRO PROCESSOR (LD-63 BOARD IC751: CXP80624AR) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	PB3		Not used.
2	PB2		
3	PB1		
4	PB0		
5	RTO7/D7		
6	RTO6/D5		
7	RTO5/D5		
8	PC4/RT04		
9	PDR RESET	O	Zoom pre-driver (LD-63 board IC752) reset signal. Normally "H". "L" when reset.
10	ZOOM DRIVE	O	Not used.
11	PC1/PP017		
12	PC0/PP016		
13	PJ7/FSEL31		
14	PJ6/FSEL30		
15	PJ5/FSEL21		
16	PJ4/FSEL20		
17	PJ3/FSEL11		
18	PJ2/FSEL10		
19	PJ1/FSEL01		
20	PJ0/FSEL00		
21	PD7		
22	PD6		
23			
24			
25	WEN		Connected to +5V.
26			
27	FOC END SENSE	I	Not used. Connected to +5V.
28	ZOOM END SENSE	I	ZOOM END sensor input. Normally "H". Sensor input "L" pulse.
29	PH7		Not used.
30	PH6		
31	PH5		
32	PH4		
33	PH3		
34	PH2		
35	PH1		
36	PH0		
37	MP		Connected to GND.
38	$\overline{\text{AF RESET}}$	I	Reset signal from camera micro processor (VC-129 board IC653). Normally "H". "L" when reset.
39	VSS		GND
40	XTAL	O	12 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS}}$ AF	I	Chip select signal from camera micro processor (VC-129 board IC653).
43	CAM SI	I	Serial data input from camera micro processor.
44	CAM SO	O	Serial data output to camera micro processor.
45	$\overline{\text{CAM SCK}}$	I	Serial data transfer clock from camera micro processor.

Pin No.	Signal Name	I/O	Function
46	PF7		Not used.
47	PF6		
48			
49			
50	AVSS		A/D port GND.
51	AVREF	I	A/D port reference voltage. Connected to +5V.
52	AVDD		A/D port +5V power supply.
53	FOCUS SENSE B	I	Focus sensor B input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
54	FOCUS SENSE A	I	Focus sensor A input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
55	MAN FOCUS(2)	I	Manual focus ring input (2). 0 Vdc to 4.8 Vdc voltage change according to ring position.
56	MAN FOCUS(1)	I	Manual focus ring input (1). 0 Vdc to 4.8 Vdc voltage change according to ring position.
57	ZOOM SW	I	Zoom switch input. Normally…Approx. 2.4 Vdc. When pressed to TELE side…Approx. 4.5 Vdc. When pressed to WIDE side…Approx. 0.3 Vdc.
58	FOCUS SENSE C	I	Focus sensor C input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
59			Connected to GND.
60			
61	PG7/EX11		Connected to +5V.
62	VD IN	I	V SYNC from SYNC generator (VC-129 board IC660).
63	PG5/SYNC1		Connected to +5V.
64	PG4		
65	PG3		
66	PG2		
67	PG1		
68	AF BUSY		
69	PE7/DAB1		Not used.
70	PE6/DAB0		
71	PE5/DAA1		
72	PE4/DAA0		
73	PE3/PWM1		
74	FOCUS PWM		Focus control signal. 21 µsec. cycle PWM signal.
75			Connected to +5V.
76			
77	AF SI	I	Serial data input from OPD (VC-129 board IC656) and zoom pre-driver (LD-63 board IC752).
78	AF SO	O	Serial data input to OPD and zoom pre-driver.
79	$\overline{\text{AF SCK}}$	O	Serial data transfer clock.
80			Not used.
81	PI/TO		
82	PI//PWM		
83	PI/PO		
84	PIO		Connected to +5V.
85	PKO		
86	GND		Connected to GND.
87	VDD		Connected to +5V.
88	VPP		
89	PA7/A15		Not used.
90	$\overline{\text{CS PDR}}$	O	Chip select signal to zoom pre-driver (LD-63 board IC752).

Pin No.	
91	P
92	P
93	$\overline{\text{C}}$
94	P
95	
96	$\overline{\text{Z}}$
97	
98	
99	
100	

eset.

Pin No.	Signal Name	I/O	Function
46	PF7		Not used.
47	PF6		
48			
49			
50	AVSS		A/D port GND.
51	AVREF	I	A/D port reference voltage. Connected to +5V.
52	AVDD		A/D port +5V power supply.
53	FOCUS SENSE B	I	Focus sensor B input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
54	FOCUS SENSE A	I	Focus sensor A input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
55	MAN FOCUS(2)	I	Manual focus ring input (2). 0 Vdc to 4.8 Vdc voltage change according to ring position.
56	MAN FOCUS(1)	I	Manual focus ring input (1). 0 Vdc to 4.8 Vdc voltage change according to ring position.
57	ZOOM SW	I	Zoom switch input. Normally…Approx. 2.4 Vdc. When pressed to TELE side…Approx. 4.5 Vdc. When pressed to WIDE side…Approx. 0.3 Vdc.
58	FOCUS SENSE C	I	Focus sensor C input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
59			Connected to GND.
60			
61	PG7/EX11		Connected to +5V.
62	VD IN	I	V SYNC from SYNC generator (VC-129 board IC660).
63	PG5/SYNC1		Connected to +5V.
64	PG4		
65	PG3		
66	PG2		
67	PG1		
68	AF BUSY		
69	PE7/DAB1		Not used.
70	PE6/DAB0		
71	PE5/DAA1		
72	PE4/DAA0		
73	PE3/PWM1		
74	FOCUS PWM		Focus control signal. 21 μsec. cycle PWM signal.
75			Connected to +5V.
76			
77	AF SI	I	Serial data input from OPD (VC-129 board IC656) and zoom pre-driver (LD-63 board IC752).
78	AF SO	O	Serial data input to OPD and zoom pre-driver.
79	$\overline{\text{AF SCK}}$	O	Serial data transfer clock.
80			Not used.
81	PI/TO		
82	PI//PWM		
83	PI/PO		
84	PIO		Connected to +5V.
85	PKO		
86	GND		Connected to GND.
87	VDD		Connected to +5V.
88	VPP		
89	PA7/A15		Not used.
90	$\overline{\text{CS PDR}}$	O	Chip select signal to zoom pre-driver (LD-63 board IC752).

Pin No.	Signal Name	I/O	Function
91	PA5		Not used.
92	PA4		
93	$\overline{\text{CS OPD}}$	O	Chip select signal to OPD (VC-129 board IC656).
94	PA2		Not used.
95			
96	$\overline{\text{ZOOM SENSE ON}}$	O	Zoom sensor on/off signal. Normally "H". "L" for approx. 1 second just after power is turned on.
97			Not used.
98			
99			
100			

3-8. MECHANISM CONTROL MICRO PROCESSOR (VC-129 BOARD IC201: CXP80624) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	RP PB	O	REC/PB switching signal of REC/PB amplifier (VC-129 board IC001) and ATF servo IC (VC-129 board IC202). "H": PB.
2	$\overline{\text{FE ON}}$	O	Flying erase oscillation on/off control signal. "L": Oscillation.
3	JOG VD	O	False VD signal inserted in playback video signal during variable speed playback.
4	JOG	O	Variable speed playback/normal playback switching signal of video circuit. "H": Variable speed playback.
5	$\overline{\text{MIC MONO}}$	I	External microphone monaural/stereo discrimination input. "L": When monaural microphone is used.
6	PB 1.7M DET	I	AFM stereo tape/monaural tape discrimination input. "H": During stereo or bilingual tape playback.
7	JACK MONO	I	Monaural/stereo discrimination input of audio input/output terminal. "L": When jack is inserted in right channel terminal.
8	INT VD	O	Internal VD signal.
9	PBV	O	System synchronizing signal which becomes reference for character generator, communication, LANC synchronization. When CAM: Locks to CAM VD (Pin (62)). When VTR: Locks to VTR SYNC (Pin (64)).
10	NC		Not used (open).
11	NC		
12	NC		
13	MODE SW C	I	Mode switch input.
14	MODE SW B	I	
15	MODE SW A	I	
16	NC		Not used (open).
17	$\overline{\text{REC PROOF SW}}$	I	Recording-proof switch input. "H": REC prohibition.
18	ME/$\overline{\text{MP}}$ SW	I	ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.
19	E/$\overline{\text{L}}$ DET	I	Normal/Hi8 discrimination input. "H": When section recorded in Hi8 mode is played back.
20	VIDEO MUTE	O	Video output mute signal. "H" mute.
21	LINE MIX	O	"H" when menu display bilingual switch is at "Off" and no plug is inserted in right audio output terminal, during playback. (Monaural signal is output after L/R mixing). "H" also when no plug is inserted in right audio output terminal in camera mode (However, when external monaural microphone is not used.).
22	MX SEL 1	O	When recording: Monaural/stereo switching signal. When playing back: Monaural/stereo/bilingual switching signal.
23	MX SEL 2	O	
24	MX ON/OFF	O	Matrix on/off signal. "H": Matrix on (stereo recording/playback)
25	Hi8/$\overline{\text{NORM}}$ (E/$\overline{\text{L}}$)	O	Video circuit normal/Hi8 switching signal. "H": Hi8 mode.
26	CAM/$\overline{\text{LINE}}$	O	Camera input/line input switching signal. "H": Camera input.
27	SP/$\overline{\text{LP}}$	O	SP/LP switching signal. "L": LP.
28	$\overline{\text{EDIT}}$	O	Video circuit normal/EDIT switching signal. "L": When edit of menu display is at "ON".
29	UNLOAD	O	Loading motor control signal. When unloading: "H" or "H" pulse.
30	LOAD	O	Loading motor control signal. When loading: "H" or "H" pulse.
31	LM LIM CONT	O	Loading motor limiter control signal. Momentarily "H" when loading.
32	DRUM ON	O	Drum motor on/off signal. "H" (Approx. 1.3V): Drum on.
33	DRUM FWD/$\overline{\text{RVS}}$	O	Drum rotation direction control signal. Normally "H".
34	NC		Not used (open).
35	NC		
36	$\overline{\text{REEL HALL CONT}}$	O	Reel FG sensor (HALL element) power supply control signal. When active: "L".
37	MP		Connected to GND.
38	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VC-129 board IC903). When reset: "L".
39	VSS		GND

	EJECT	USE	LS	GL	REC/PB	READY
MODE SW A	L	H	L	L	H	H
MODE SW B	L	H	H	H	L	L
MODE SW C	H	L	H	L	H	L

	Monaural	Stereo
MX SEL 1	L	L
MX SEL 2	H	L

	Stereo	Main	Sub	Monaural
MX SEL 1	L	L	H	L
MX SEL 2	L	H	L	H

Pin No.	Signal Name	I/O	Function
40	XTAL	O	11.7 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS MECHA}}$	I	Chip select signal from mode control micro processor (VC-129 board IC903).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MSTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	MONO REC	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off).
47	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
48	TLV CHC	I	Not used. Connected to GND.
49	L AUDIO OUT	O	Audio input/output switching signal. "H" when no signal in both DS off mode and playback mode.
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS5V.
52	AVDD		A/D converter system power supply. Connected to SS5V.
53	NC		Not used. Connected to GND.
54	TAPE END	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TAPE TOP	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	BATT SENSE	I	Not used. Connected to GND.
58	ATF ERROR	I	ATF error, ATF lock error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC-129 board IC660). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator. 2V cycle pulse.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65	SP/$\overline{\text{LP}}$ DET	I	Discriminates recording mode of playback tape during CUE/REVIEW/FF/REW. "L"=LP
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input. Approx. 1145.5 Hz during REC/PB for capstan speed servo (SP mode).
69	DS ON	O	Data screen on/off signal. Not used.
70	ME/$\overline{\text{MP}}$	O	Recording current switching signal. "H": ME tape.
71	TAPE LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
72	VA PB	O	REC/PB switching signal of video/audio circuit. "H": PB.
73	CAP PWM	O	Capstan error signal output. 20.15 μsec. PWM signal.
74	DRUM PWM	O	Drum error signal output. 20.15 μsec. PWM signal.
75	CFG HMS	I	Capstan FG signal input. For tape counter.
76	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
77	LANC IN	I	Not used. Connected to SS +5V.
78	LANC OUT	O	Not used.
79	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter on detection signal. Normally "H". "L" when limiter is on.
80	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP tape.
81	COMPOSIT REC	O	Video input/S video input switching signal. "H": Video input.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo. Output after synchronizing with drum rotation and switching 4 frequencies. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.
84	NC		Not used. Connected to GND.
85	NC		Not used. Connected to GND.

Pin No.	
86	VSS
87	VDD
88	VPP
89	$\overline{\text{MUTE}}$
90	$\overline{\text{MUTE}}$
91	$\overline{\text{MUTE}}$
92	$\overline{\text{MUTE}}$
93	$\overline{\text{REC 2}}$
94	$\overline{\text{REC 1}}$
95	$\overline{\text{REC 2}}$
96	$\overline{\text{REC 1}}$
97	$\overline{\text{RF SW}}$
98	$\overline{\text{1/2 RF}}$
99	CAP O
100	CAP F

:TIONS

C-129 board

sed playback.
: is used.
yback.
ed in right

n, LANC
C (Pin ⑱).

PB	READY
	H
	L
	L

out terminal.
rted in right
used.).
l switching

	Monaural
	L
	H

Pin No.	Signal Name	I/O	Function
40	XTAL	O	11.7 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS MECHA}}$	I	Chip select signal from mode control micro processor (VC-129 board IC903).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MSTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	MONO REC	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off).
47	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
48	TLV CHC	I	Not used. Connected to GND.
49	L AUDIO OUT	O	Audio input/output switching signal. "H" when no signal in both DS off mode and playback mode.
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS5V.
52	AVDD		A/D converter system power supply. Connected to SS5V.
53	NC		Not used. Connected to GND.
54	TAPE END	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TAPE TOP	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	BATT SENSE	I	Not used. Connected to GND.
58	ATF ERROR	I	ATF error, ATF lock error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC-129 board IC660). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator. 2V cycle pulse.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65	SP/$\overline{\text{LP}}$ DET	I	Discriminates recording mode of playback tape during CUE/REVIEW/FF/REW. "L"=LP
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input. Approx. 1145.5 Hz during REC/PB for capstan speed servo (SP mode).
69	DS ON	O	Data screen on/off signal. Not used.
70	ME/$\overline{\text{MP}}$	O	Recording current switching signal. "H": ME tape.
71	TAPE LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
72	VA PB	O	REC/PB switching signal of video/audio circuit. "H": PB.
73	CAP PWM	O	Capstan error signal output. 20.15 µsec. PWM signal.
74	DRUM PWM	O	Drum error signal output. 20.15 µsec. PWM signal.
75	CFG HMS	I	Capstan FG signal input. For tape counter.
76	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
77	LANC IN	I	Not used. Connected to SS +5V.
78	LANC OUT	O	Not used.
79	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter on detection signal. Normally "H". "L" when limiter is on.
80	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP tape.
81	COMPOSIT REC	O	Video input/S video input switching signal. "H": Video input.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo. Output after synchronizing with drum rotation and switching 4 frequencies. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.
84	NC		Not used. Connected to GND.
85	NC		Not used. Connected to GND.

Pin No.	Signal Name	I/O	Function
86	VSS		GND.
87	VDD		Connected to SS5V.
88	VPP		
89	$\overline{\text{MUTE 2B}}$	O	Head mute signal. Control signal for preventing cross-talk from other 3 heads during recording/playback. When PB/REC: 4V cycle pulse (Only head playing back/recording "L"). In other modes: "L".
90	$\overline{\text{MUTE 1B}}$	O	
91	$\overline{\text{MUTE 2A}}$	O	
92	$\overline{\text{MUTE 1A}}$	O	
93	$\overline{\text{REC 2B}}$	O	Recording heads (1A, 1B, 2A, 2B) switching control signal. When REC: 4V cycle pulse (Only head recording "L"). In other modes: "H".
94	$\overline{\text{REC 1B}}$	O	
95	$\overline{\text{REC 2A}}$	O	
96	$\overline{\text{REC 1A}}$	O	
97	$\overline{\text{RF SWP}}$	O	RF switching pulse signal. 25 Hz, 50% duty pulse.
98	$\overline{\text{1/2 RF SWP}}$	O	1/2 RF switching pulse signal. 12.5 Hz, 50% duty pulse.
99	CAP ON	O	Capstan driver on/off control signal. "H": Capstan on.
100	CAP FWD/$\overline{\text{RVS}}$	O	Capstan rotation direction control signal. "H": FWD, "L": RVS.

3-9. MODE CONTROL MICRO PROCESSOR (VC-129 BOARD IC903: MB89092PFV-G-112A) PIN FUNCTIONS

Pin No.	Port Name	Signal Name	I/O	Function
1	MOD0	TEST MODE 0	I	Connected to GND.
2	MOD1	TEST MODE 1	I	Connected to GND.
3	X0	X0	I	10 MHz clock oscillation circuit.
4	X1	X1	O	
5	VSS	VSS		GND
6	XRST	RESET	I	Reset input.
7	P00/EI20	DATA SW	I	Date (+) key (CF-33 board S115) input. Normally "H". "L" when key is pressed.
8	P01/EI21	TIME SW	I	Time key (CF-33 board S119) input. Normally "H". "L" when key is pressed.
9	P02/EI22	EJECT SW	I	Cassette eject switch (CF-33 board S111) input. Normally "H". "L" when switch is pressed.
10	P03/EI23	VTR MODE SW	I	Power supply switch (CF-33 board S114) input. "L" when power supply switch is at "Video".
11	P04/EI24	AUTO LOCK SW	I	Auto lock switch (CF-33 board S108) input. "H" during auto lock.
12	P05/EI25	START/STOP SW	I	Start/stop key (CF-33 board S112) input. "L" when key is pressed (However, when power supply switch is at "Camera" and stand-by switch at "Standby".)
13	P06/EI26	CC DOWN SW	I	CCDOWN switch (mechanism section) input. "L" when cassette compartment is locked.
14	P07/EI27	CAM+STBY SW	I	Power supply switch (CF-33 board S114), stand-by switch (CF-33 board S113) input. "L" when power supply switch is at "Camera" and stand-by switch at "Standby".
15	P10/EI10	BATT IN	I	Main battery detection input. "H" when main battery is loaded or external power supply is connected.
16	P11/EI11	PB V	I	System sync signal from mechanism control micro processor (VC-129 board IC201). Timing reference signal of communication, LANC, etc.
17	P12/EI12			Not used.
18	P13/EI13	LANC POWER ON	I	Power on signal input from wired remote commander. "L" when power switch of remote commander is pressed.
19	P14	LI PRE END	I	Lithium battery end detection input. "L" when lithium battery has worn out or has not been loaded.
20	P15	EEPROM WE	O	EEPROM (VC-129 board IC901) writing enable signal. "L" when writing data.
21	P16			Not used.
22	P17			
23	P20	TALLY LED	O	Tally LED on/off signal. "L" during camera recording.
24	P21	SYSTEM RESET	O	Reset signal of all systems. Normally "H". "L" when reset.
25	P22	CHARGE	O	Charge control signal. Normally "H". "L" when charged.
26	COMD	CLK 10M/32k	I	Mode control micro processor clock frequency switching signal. "H" (10 MHz) when main battery is loaded or external power supply is connected. "L" (32 kHz) when backed up by lithium battery.
27	P24/SI0			Not used.
28	P25/SO0			
29	P26/SCK0			
30	P27/RMC1	SIRCS IN	I	Infrared remote commander signal input.
31	P30/SEG31			Not used.
32	P31/SEG30	AC 6.5/8.4	O	AC power supply voltage switching. "H" when 6.5V. "L" when 8.4V.
33	P32/SEG29	CS EEPROM	O	Chip select signal to EEPROM (VC-129 board IC901).
34	P33/SEG28	CS SR	O	Chip select signal to video circuit Y signal process IC (VC-129 board IC401).

Pin No.	Port Name	Signal Name	I/O	Function
35	P34/SEG27	IN/OUT	O	Video and audio input/output switching signal. "H" during input. "L" during output.
36	P35/SEG26	CS SG	O	Chip select signal to SYNC generator (VC-129 board IC660).
37	P36/SEG25	STB DA	O	Strobe signal to video circuit EVR (VC-129 board IC303).
38	P37/SEG24	CS TAI	O	Chip select signal to camera micro processor (VC-129 board IC653).
39	P40/SEG23	SEL	O	Infrared remote commander selection signal. "L" when muting SIRCS 2 signal from back sensor section (RE-23 board IC251).
40	P41/SEG22	SEL	O	Infrared remote commander selection signal. "L" when muting SIRCS 1 signal from front sensor section (RE-23 board IC201).
41	P42/SEG21	FOCUS LOCK	O	Not used.
42	P43/SEG20			
43	P44/SEG19			
44	P45/SEG18			
45	P46/SEG17	SEG17	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V and 4.8V).
46	P47/SEG16	SEG16	O	
47	VCC	VCC		+5V power supply (+3V power supply during backup).
48	SEG15	SEG15	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V, and 4.8V).
49	SEG14	SEG14	O	
50	SEG13	SEG13	O	
51	SEG12	SEG12	O	
52	SEG11	SEG11	O	
53	SEG10	SEG10	O	
54	SEG09	SEG09	O	
55	SEG08	SEG08	O	
56	VSS			GND
57	SEG07	SEG07	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3,2V, and 4.8V).
58	SEG06	SEG06	O	
59	SEG05	SEG05	O	
60	SEG04	SEG04	O	
61	SEG03	SEG03	O	
62	SEG02	SEG02	O	
63	SEG01	SEG01	O	
64	SEG00	SEG00	O	
65	V3	V3	I	4.8V LCD drive bias voltage
66	V2	V2	I	3.2V
67	V1	V1	I	1.6V
68	V0	V0	I	0V
69	COM0	COM0	O	LCD COM terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V, 4.8V).
70	COM1	COM1	O	
71	COM2	COM2	O	
72	COM3	COM3	O	
73	P80/STB	CS OSD	O	Chip select signal to character generator (VC-129 board IC905).
74	P81/XCS	CS MECHA	O	Chip select signal to mechanism control micro processor (VC-129 board IC201).
75	P82/SI1	DATA TO MASTER	I	Serial data input signal.
76	P83/SO1	DATA TO SLAVE	O	Serial data output signal.
77	P84/SCK1	MODECON SCK	O	Serial data transfer clock.
78	P85/ECK	TG STBY 1	O	Controls 4FSC of timing generator (VC-129 board IC602). "H" when no signal in VTR mode, "L" at other times.

Pin No.	P
79	P8
80	P8
81	AV
82	P9
83	P91
84	P9
85	P9
86	P9
87	P9
88	P9
89	P9
90	AV
91	PA
92	PA
93	PA
94	PA
95	PA
96	PA
97	PA
98	VC
99	CL
100	CL

luring output.

2 signal from

1 signal from

and 4.8V).

, and 4.8V).

', and 4.8V).

1.8V).

ard IC201).

Pin No.	Port Name	Signal Name	I/O	Function
79	P86/TO1	VTR DD ON	O	VTR DC-DC converter control signal. "H" when power switch is at "Player" or "Camera".
80	P87/TO2	CAM DD ON	O	CAMERA DC-DC converter control signal.
81	AVSS	AVSS		A/D port GND.
82	P90/AN00	K AD IN 0	I	Key input. A/D port. No input ······ 5V (4.9V) Edit search (–) key (FK-33 board S202) ······ 4V (3.6V to 4V) Playback key (FK-33 board S203) ······ 3V (2.6V to 3.2V) Fast forward key (FK-33 board S204) ······ 2V (1.6V to 2.2V) Stop key (FK-33 board S205) ······ 1V (0.4V to 1.3V) Record key (Not used) ······ 0V (0V to 0.2V)
83	P91/AN01	K AD IN 1	I	Key input. A/D port. No input ······ 5V Edit search (+) key (FK-33 board S207) ······ 4V Item key (FK-33 board S208) ······ 3V Menu key (FK-33 board S209) ······ 2V Rewind key (FK-33 board S210) ······ 1V Pause key (FK-33 board S211) ······ 0V
84	P92/AN02	K AD IN 2	I	Key input. A/D port. No input ······ 5V Counter reset key (CF-33 board S105) ······ 2V Setting key (FK-33 board S216) ······ 0V
85	P93/AN03	K AD IN 3	I	Key input. A/D port. No input ······ 5V Focus key (CF-33 board S101) ······ 3V Brightness lock key (CF-33 board S102) ······ 2V Program AE key (CF-33 board S103) ······ 0V
86	P94/AN04			Not used.
87	P95/AN05			
88	P96/AN06			
89	P97/AN07	CHARGE REF	I	CHARGE REF voltage input.
90	AVCC	AVCC		A/D port power supply (+5V).
91	PA0/AN08	BATT SENS	I	For battery end detection, main battery voltage input. (Voltage divided into 1/2 by R972, R973).
92	PA1/AN09	BATT/$\overline{\text{EXT}}$	I	Battery/external power supply switching signal input. "L" when external power supply is used.
93	PA2/AN10	BRIGHA B	I	Brightness adjusting dial input. Pulse input by dial rotation.
94	PA2/AN11	BRIGHT B	I	Brightness adjusting dial input. Pulse input by dial rotation.
95	PA4/LSI	LANC IN	I	LANC serial data input.
96	PA5/LSO	LANC OUT	O	LANC serial data output.
97	PA6/COUT		O	Terminal for checking.
98	VCC	VCC		+5V power supply (+3V power supply during backup).
99	CLI	CLI	O	32 kHz clock oscillation circuit (for clock).
100	CLO	CLO	I	

3-10. INTERFACE

3-10-1. System Control-Video and Audio Block Interface (VC-129 Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB· PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
SP/$\overline{\text{LP}}$	O	IC201 ㉗	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*2	*2	*17	H/L	H/L	*17	*2	*2	H	H
VA PB	O	IC201 (72)	L	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE *13	O	IC201 ㊼	H	H	H	H	H	L	H	H	H	H	H	H	H	L	L	L	L	H	H	L	H
VIDEO MUTE	O	IC201 ⑳	H	H	H	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*3	*3	L	L	*4	*4	*4	*4
CAM/$\overline{\text{LINE}}$	O	IC201 ㉖	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H
JOG VD	O	IC201 ③	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	L	*5	L	L	L	L	L	*5	L	*5
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{FE ON}}$	O	IC201 ②	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{1/2 RF SWP}}$	O	IC201 (98)	H	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RF SWP	O	IC201 (97)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
$\overline{\text{MUTE 2B}}$	O	IC201 (89)	L	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
$\overline{\text{MUTE 1B}}$	O	IC201 (90)																					
$\overline{\text{MUTE 2A}}$	O	IC201 (91)																					
$\overline{\text{MUTE 1A}}$	O	IC201 (92)																					
JOG	O	IC201 ④	L	L	L	H	H	L	H	H	H	H	H	L	H	L	L	L	L	L	H	L	H
L AUDIO OUT	O	IC201 ㊾	L	L	L	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	L	L	L	L	*15	*15	*15	*15

Signal Na
$\overline{\text{REC2B}}$
$\overline{\text{REC1B}}$
$\overline{\text{REC2A}}$
$\overline{\text{REC1A}}$
SP/$\overline{\text{LP}}$ DET
CLOG
VTR SYNC

*1. Outpu

*2. Outpu
SP m

*3. “L” w

*4. “H” w

*5. False

*6. 12.5

*7. 25 Hz

*8. Refer

*9. Refer

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB-PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
$\overline{\text{REC2B}}$	O	IC201 (93)	H	H	H	H	H	H	H	H	H	H	H	H	H	*9	H	H	*9	H	H	H	H
$\overline{\text{REC1B}}$	O	IC201 (94)																					
$\overline{\text{REC2A}}$	O	IC201 (95)																					
$\overline{\text{REC1A}}$	O	IC201 (96)																					
SP/$\overline{\text{LP}}$ DET	I	IC201 (65)	L	*10	*10	*10	*10	L	*10	*10	*10			L	*10	H	H	H	H	L	*10	L	*10
CLOG	I	IC201 (82)	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	*11	H	*11	*11	*11	*11
VTR SYNC	I	IC201 (64)	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12

*1. Outputs the discrimination results of the mode just before. SP mode: "H", LP mode: "L".

*2. Outputs the discrimination results of the recording mode of the tape played back.
SP mode: "H", LP mode: "L".

*3. "L" when the external input (video) is present. "H" when at other times.

*4. "H" when there are no signals on the tape. "L" at other times.

*5. False VD signal.

*6. 12.5 Hz duty 50% pulse (synchronizes with the rotation of the drum).

*7. 25 Hz duty 50% pulse (synchronizes with the rotation of the drum).

*8. Refer to Time Chart 1.

*9. Refer to Time Chart 2.

*10. "H" at SP recorded section of the tape, "L" at LP recorded section.

*11. "H" at unrecorded section or drop-out section. Head clog detection input.

*12. Composite sync signal input separated from the line input video signal, camera video signal or playback video signal. (Polarity +)

*13. "H" during load/unload of CAMERA mode.

*14. Condition where edit search is pressed during the pause of a playback.

*15. "H" when playing back with no signals and with the data screen off.

*16. Mode for adjustment.

*17. Set by REC MODE switch of menu screen. "H": SP mode, "L": LP mode.

3-10-2. System Control-Servo Block Interface (VC-129 Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB-PAUSE	FRAME	SLOW	SHUTTLE EDIT*13		REC*14	REC*14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
T.REEL FG	I	IC201 (60)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
S.REEL FG	I	IC201 (59)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
ATF ERROR	I	IC201 (58)	–	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC201 (66)	–	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC201 (67)	–	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC201 (68), (75)	–	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC201 (99)	L	H	H	H	H	H	H	H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
REF PILOT	O	IC201 (83)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
DRUM FWD/$\overline{\text{RVS}}$ *10	O	IC201 ㉝	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/ $\overline{\text{RVS}}$	O	IC201 (100)	L	H	L	H	L	H	H	L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
DRUM PWM	O	IC201 (74)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC201 (73)	L	*9	*9	*9	*9	*9	*9	*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
LM LIM CONT *11	O	IC201 ㉛	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON *12	O	IC201 ㉜	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

*1. A pulse whose amplitude has been modulated by the rotation of the reel (5.5 msec. cycle) is input. (The amplitude modulation cycle is approx. 1 sec. during REC/PB.)

*2. ATF error voltage input.

*3. One PG pulse is input with one drum rotation. Approx. 37.5 Hz.

*4. Six FG pulses are input with one drum rotation. Approx. 225 Hz.

*5. 360 FG pulses are input with one capstan rotation. Approx. 1145.5 Hz during REC/PB (SP).

*6. Outputs four frequencies synchronized with the rotation of the drum. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.

*7. Outputs f_2 (117.2 kHz).

*8. "H" pulse when the tape is run.

*9. 21.5 µsec. cycle PWM signal.

*10. Normally "H". Temporarily "L" only during load/unload (drum reversal).

*11. Temporarily "H" only during cassette loading (To prevent your finger from being caught).

*12. H level is approx. 1.3 Vdc.

*13. Condition where edit search is pressed during the pause of a playback.

*14. Mode for adjustment.

Timing Chart 1

REC/PB MOD

REC/PB MOD

Timing Chart 2

REC MODE

R Mode								CAMERA Mode					
EARCH	PB-PAUSE	FRAME	SLOW	SHUTTLE EDIT*13		REC*14	REC*14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
EVIEW				FWD	REV					FWD	RVS	FWD	RVS
*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
H	H	H	H	H	H	L	H	H	L	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
L	L	L	L	L	L	L	L	L	L	L	L	L	L
H	H	H	H	H	H	H	H	H	H	H	H	H	H

*7. Outputs f2 (117.2 kHz).

*8. "H" pulse when the tape is run.

*9. 21.5 μsec. cycle PWM signal.

*10. Normally "H". Temporarily "L" only during load/unload (drum reversal).

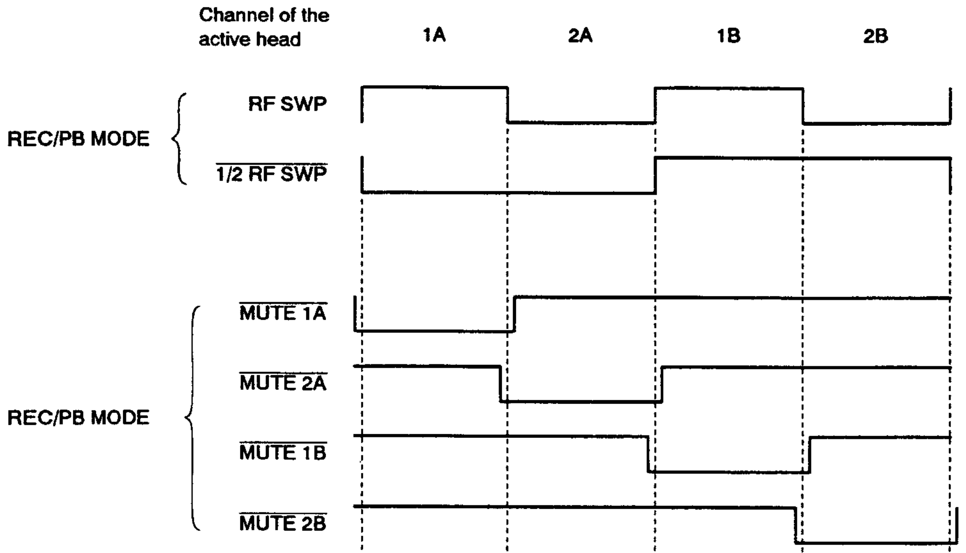
*11. Temporarily "H" only during cassette loading (To prevent your finger from being caught).

*12. H level is approx. 1.3 Vdc.

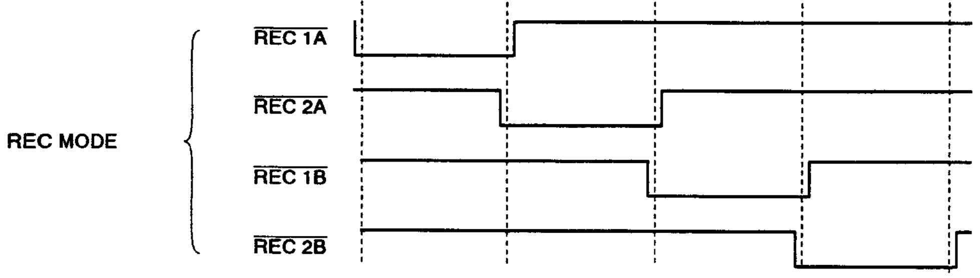
*13. Condition where edit search is pressed during the pause of a playback.

*14. Mode for adjustment.

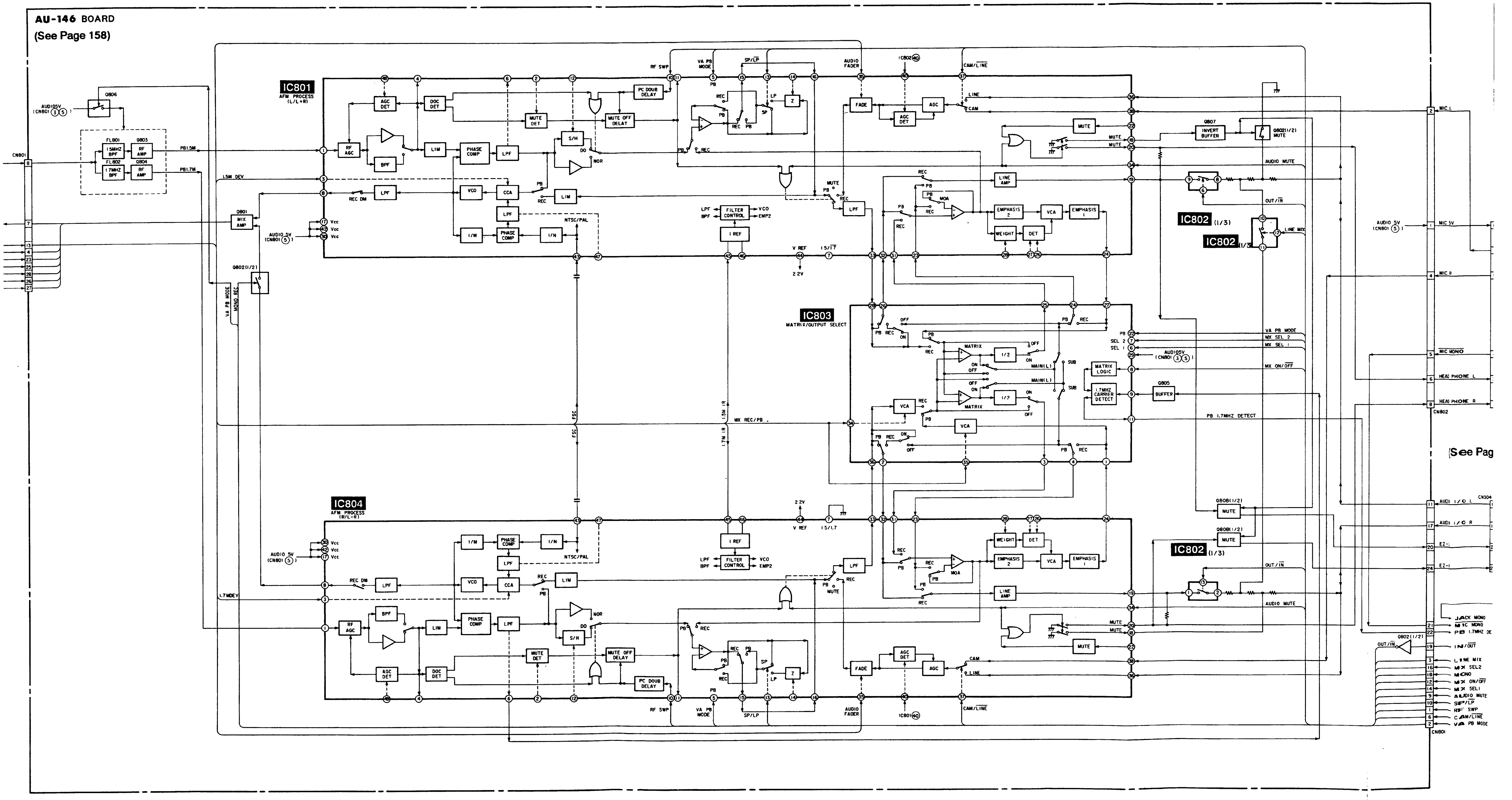
Timing Chart 1

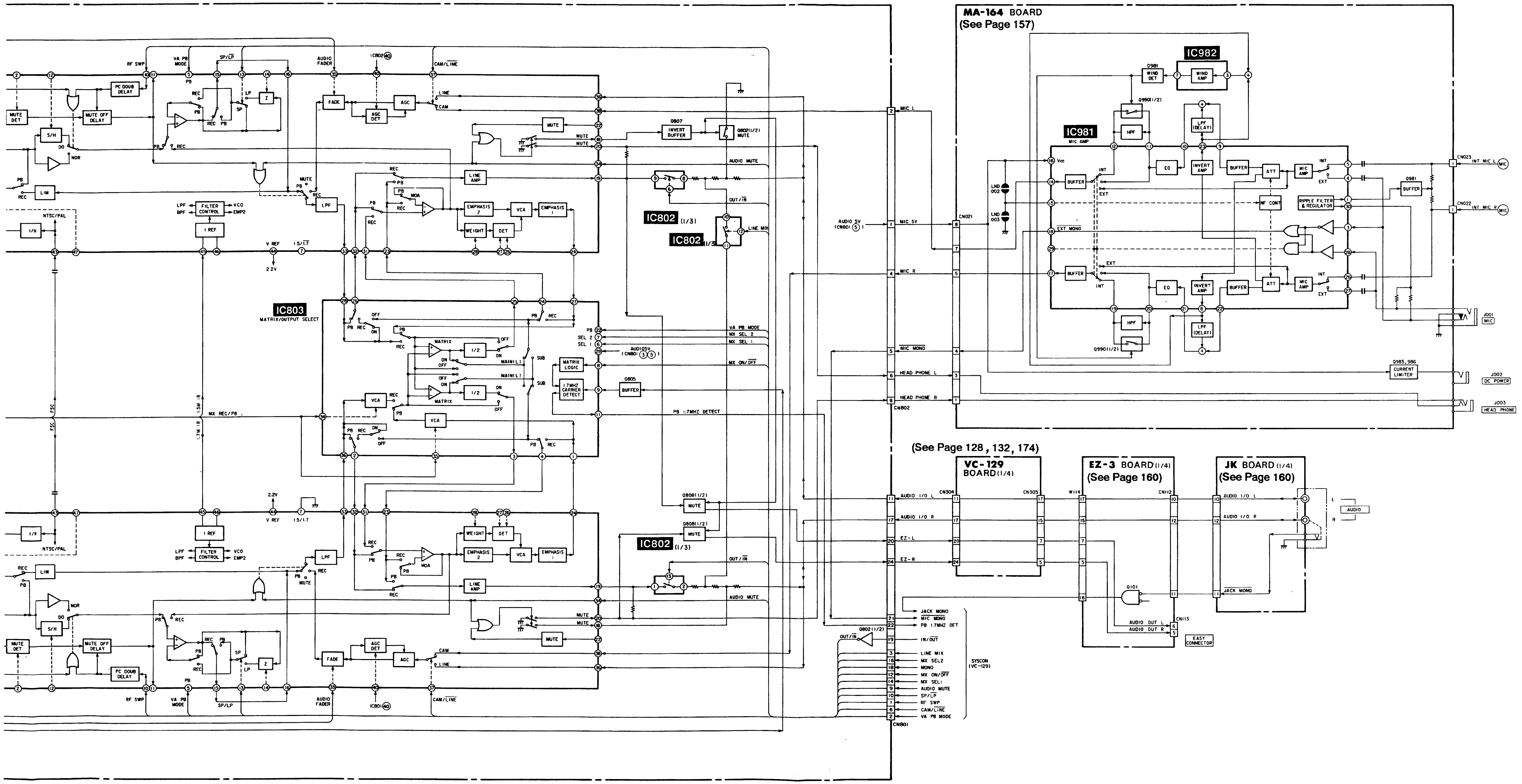


Timing Chart 2

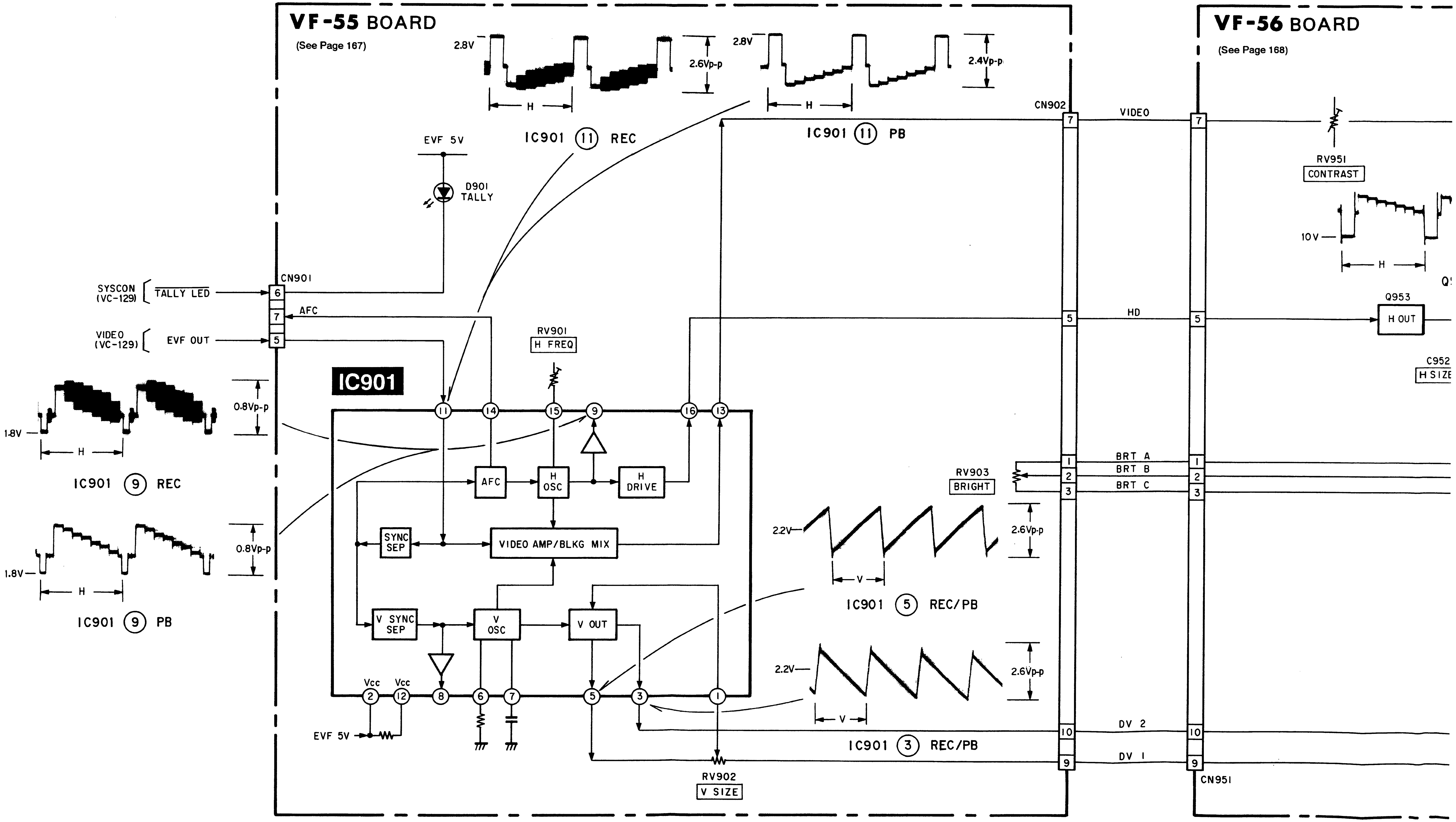


3-11. AUDIO BLOCK DIAGRAM


AU-146 BOARD
(See Page 158)
IC801
AFM PROCESS (L/L+R)
IC804
AFM PROCESS (R/L+R)
IC803
MATRIX/OUTPUT SELECT
IC802 (1/3)
IC802 (1/3)
IC802 (1/3)
CN801
CN802
CN304
FL801
FL802
Q801
Q802(1/2)
Q803
Q804
Q805
Q806
Q807
Q808(1/2)
AGC DET
DOC DET
MUTE DET
MUTE OFF DELAY
PC DOUB DELAY
RF AGC
BPF
LIM
PHASE COMP
LPF
VCO
CCA
I/M
I/N
S/H
FILTER CONTROL
I REF
FADE
AGC
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
MUTE
INVERT BUFFER
MATRIX LOGIC
1.7MHZ CARRIER DETECT
BUFFER
MIX AMP
PB PF
REC AFM
VIDEO(2) VC-129
VIDEO(1) VC-129
1.5 IR
AUDIO FADER
1.7 IR
1.5 DEV
MX REC PB
1.7 DEV
FSC
AUDIO 5V (CN801 ⑤)
MIC L
MIC 5V
MIC R
MIC MONO
HEAD PHONE L
HEAD PHONE R
AUDI I/O L
AUDI I/O R
EZ-1
EZ-1
JACK MONO
MIC MONO
PB 1.7MHZ DE
IN/OUT
LINE MIX
MX SEL2
MONO
MX ON/OFF
MX SEL1
AUDIO MUTE
SP/LP
RF SWP
CAM/LINE
VA PB MODE
OUT/IN
PB 1.7MHZ DETECT
V REF
1.5/1.7
2.2V
NTSC/PAL
(See Pag

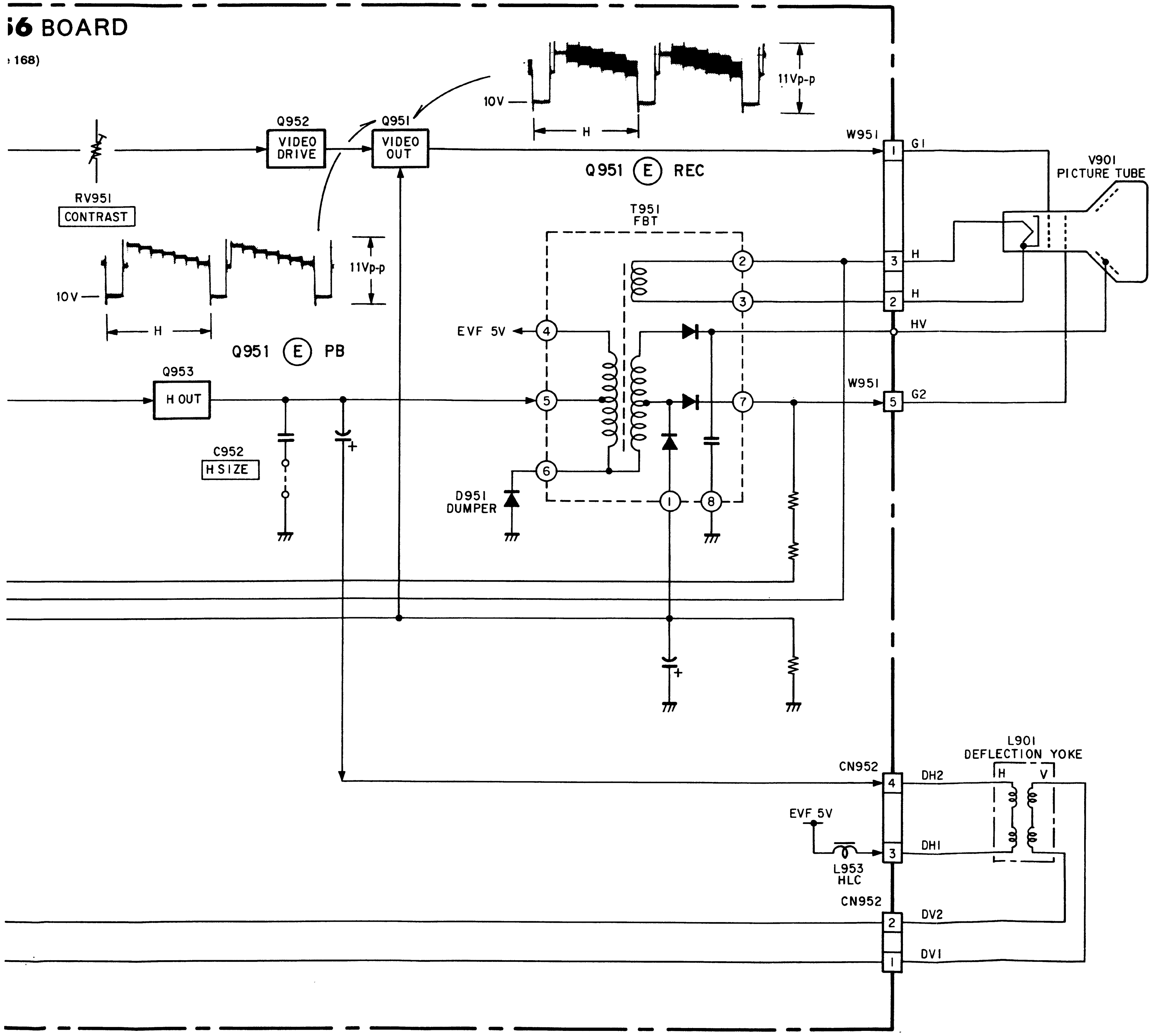

MA-164 BOARD
(See Page 157)
IC982
IC981
MIC AMP
WIND DET
WIND AMP
HPF
LPF (DELAY)
EQ
INVERT AMP
BUFFER
ATT
MIC AMP
NF CONT
RIPPLE FILTER & REGULATOR
CURRENT LIMITER
INT MIC L
INT MIC R
J001 MIC
J002 DC POWER
J003 HEAD PHONE
CN021
CN022
CN023
CN802
CN801
MIC L
MIC 5V
MIC R
MIC MONO
HEAD PHONE L
HEAD PHONE R
AUDIO 5V (CN801 ⑤)
IC803
MATRIX/OUTPUT SELECT
IC802
IC802 (1/3)
MATRIX LOGIC
1.7MHZ CARRIER DETECT
PB 1.7MHZ DETECT
VA PB MODE
MX SEL 2
MX SEL 1
MX ON/OFF
AUDIO MUTE
OUT/IN
LINE MIX
AUDIO FADER
CAM/LINE
RF SWP
SP/LP
PC DOUB DELAY
MUTE DET
MUTE OFF DELAY
S/H
LIM
NTSC/PAL
FILTER CONTROL
I REF
V REF
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
FADE
AGC
AGC DET
INVERT BUFFER
MUTE
MX REC/PB
(See Page 128, 132, 174)
VC-129 BOARD (1/4)
EZ-3 BOARD (1/4)
(See Page 160)
JK BOARD (1/4)
(See Page 160)
AUDIO I/O L
AUDIO I/O R
EZ-L
EZ-R
JACK MONO
MIC MONO
PB 1.7MHZ DET
IN/OUT
MX SEL2
MONO
MX ON/OFF
MX SEL1
AUDIO MUTE
SP/LP
RF SWP
CAM/LINE
VA PB MODE
SYSCON (VC-129)
AUDIO OUT L
AUDIO OUT R
EASY CONNECTOR
AUDIO

3-12. EVF BLOCK DIAGRAM

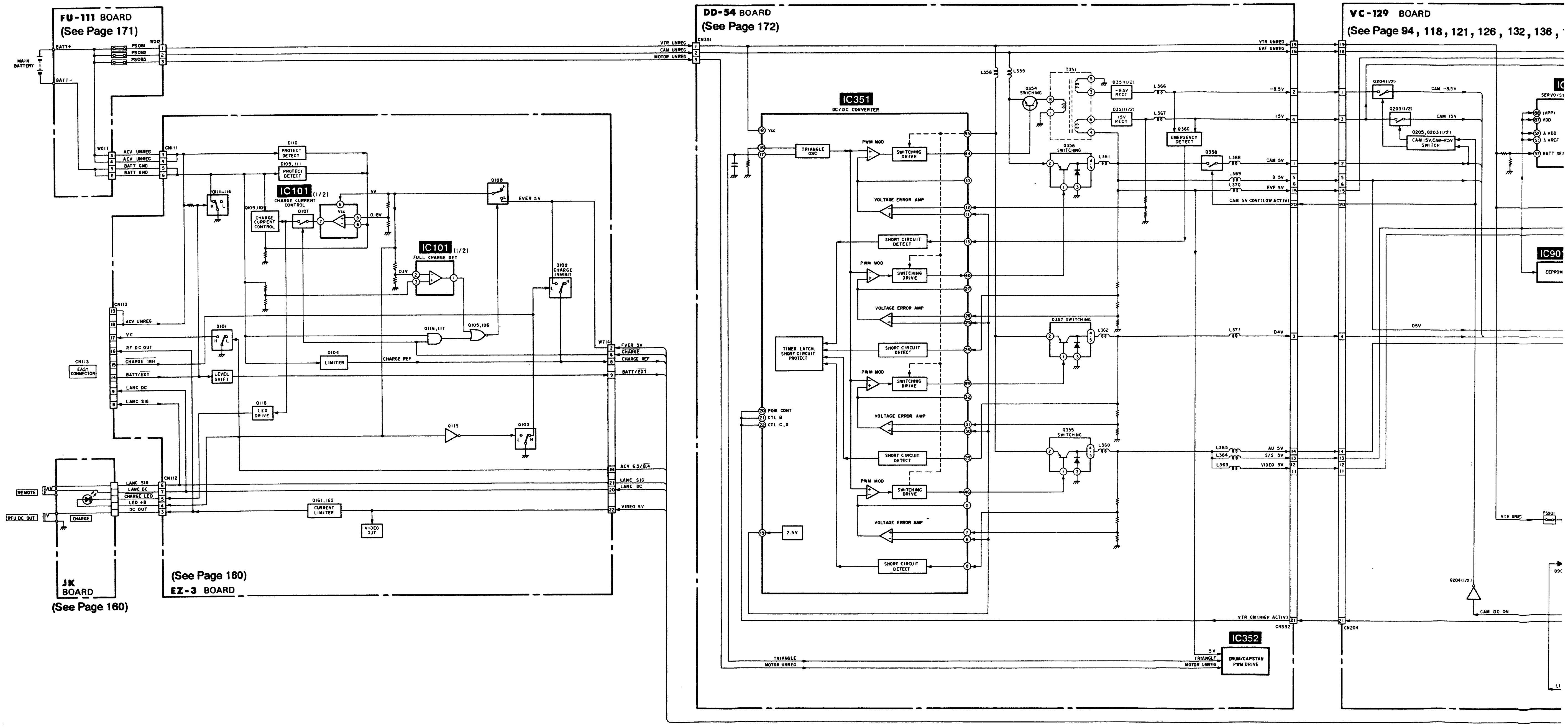

VF-55 BOARD
(See Page 167)
VF-56 BOARD
(See Page 168)
2.8V
2.6Vp-p
H
IC901 (11) REC
2.8V
2.4Vp-p
H
IC901 (11) PB
EVF 5V
D901
TALLY
CN901
SYSCON (VC-129)
TALLY LED
AFC
VIDEO (VC-129)
EVF OUT
IC901
RV901
H FREQ
1.8V
0.8Vp-p
H
IC901 (9) REC
1.8V
0.8Vp-p
H
IC901 (9) PB
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
Vcc
Vcc
EVF 5V
RV902
V SIZE
CN902
VIDEO
HD
BRT A
BRT B
BRT C
DV 2
DV 1
RV903
BRIGHT
2.2V
2.6Vp-p
V
IC901 (5) REC/PB
2.2V
2.6Vp-p
V
IC901 (3) REC/PB
CN951
RV951
CONTRAST
10V
H
Q953
H OUT
C952
H SIZE

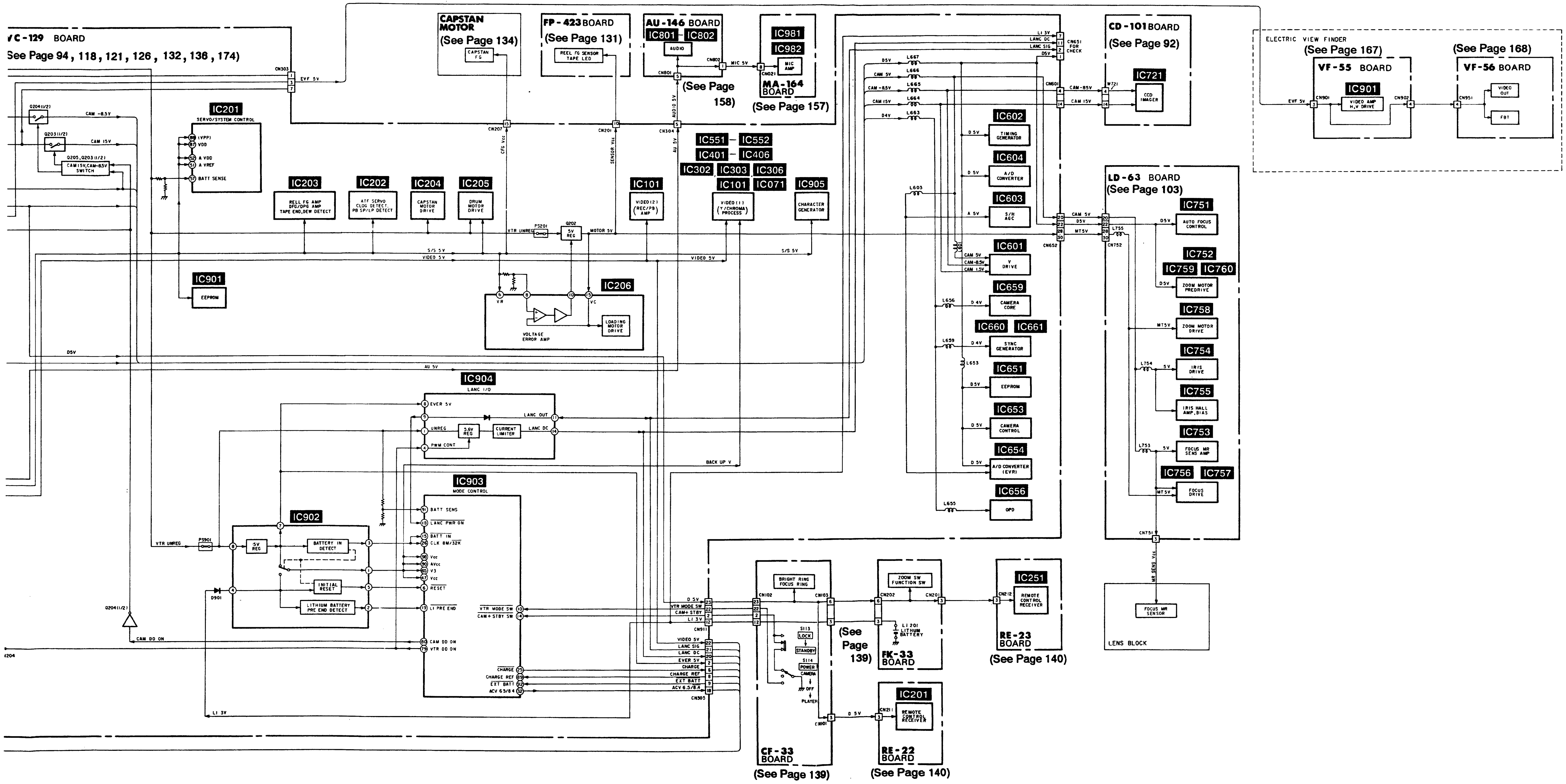
6 BOARD

168)

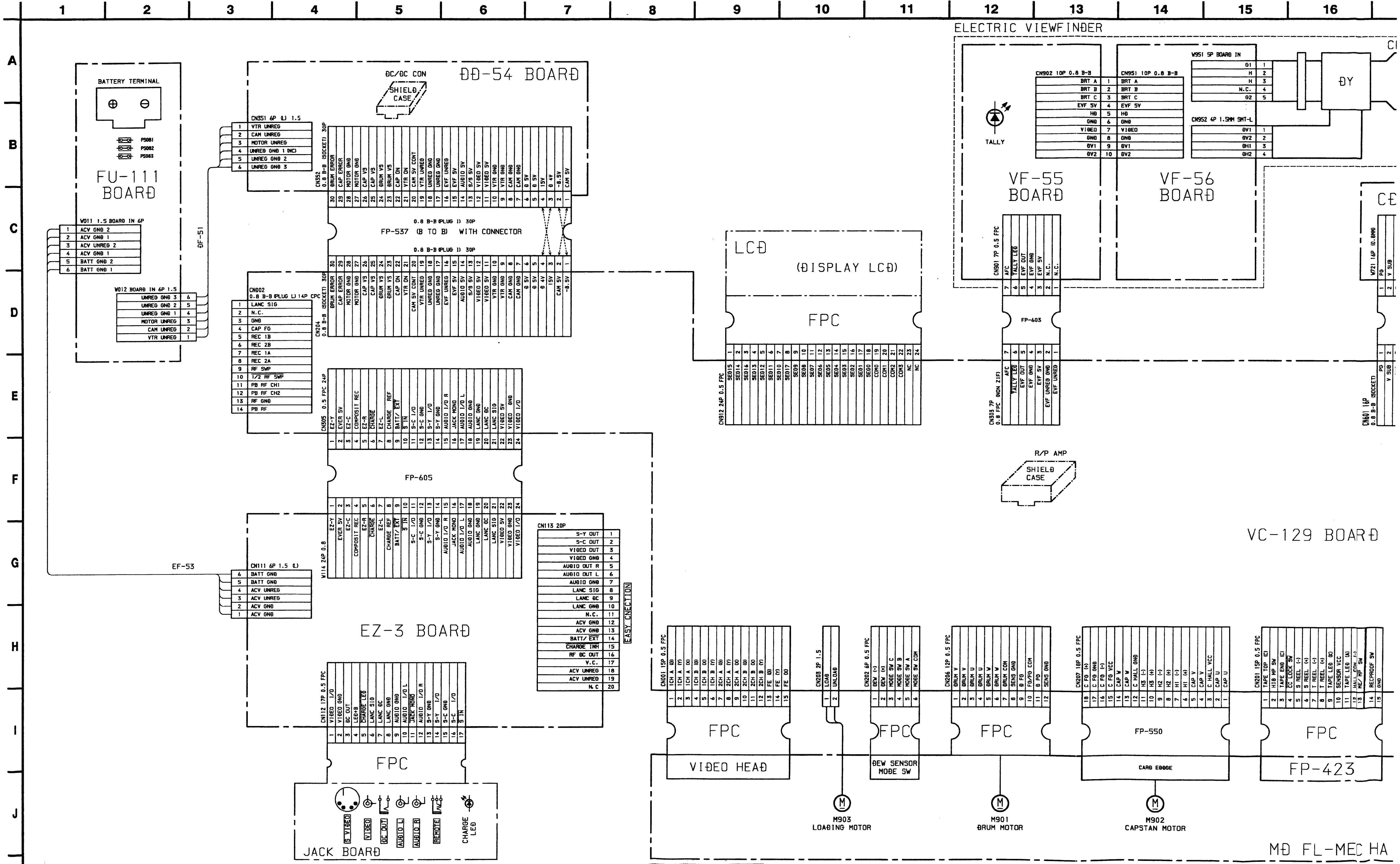

RV951
CONTRAST
Q952
VIDEO DRIVE
Q951
VIDEO OUT
10V
11Vp-p
H
Q951 (E) REC
Q951 (E) PB
W951
G1
V901
PICTURE TUBE
T951
FBT
H
HV
EVF 5V
Q953
H OUT
C952
H SIZE
D951
DUMPER
W951
G2
L901
DEFLECTION YOKE
H
V
CN952
DH2
EVF 5V
DH1
L953
HLC
CN952
DV2
DV1
1
2
3
4
5
6
7
8

3-13. POWER BLOCK DIAGRAM

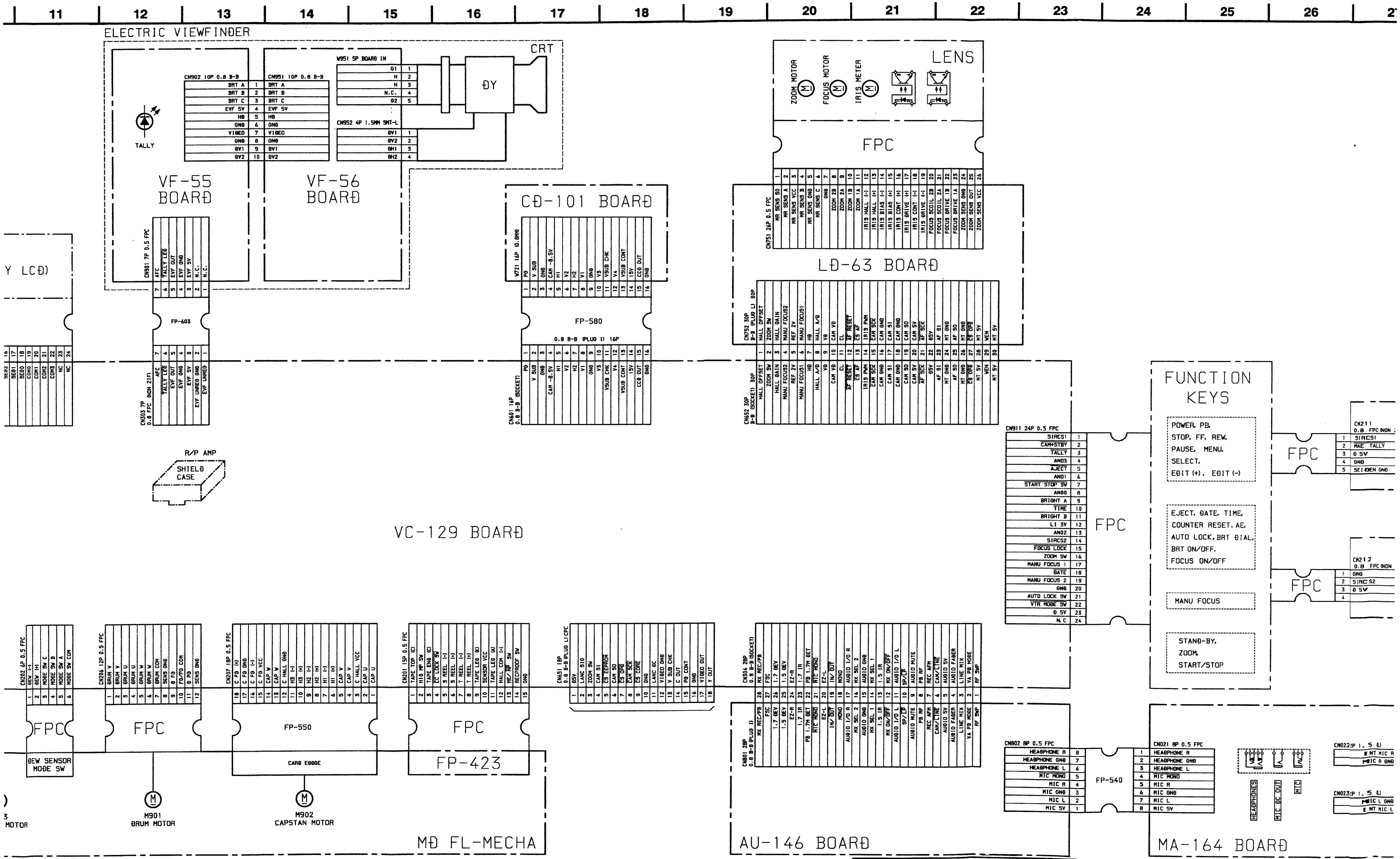

FU-111 BOARD
(See Page 171)
MAIN BATTERY
BATT+
BATT−
PS081
PS082
PS083
W012
W011
ACV UNREG
BATT GND
CN111
CN113
EASY CONNECTOR
D110 PROTECT DETECT
D109,111 PROTECT DETECT
IC101 (1/2)
CHARGE CURRENT CONTROL
Q107
Q108
EVER 5V
IC101 (1/2)
FULL CHARGE DET
Q102 CHARGE INHIBIT
Q101
Q116,117
Q105,106
Q104 LIMITER
CHARGE REF
LEVEL SHIFT
Q118 LED DRIVE
Q115
Q103
Q161,162 CURRENT LIMITER
VIDEO OUT
REMOTE
RFU DC OUT
CHARGE
JK BOARD
(See Page 160)
(See Page 160)
EZ-3 BOARD
LANC SIG
LANC DC
CHARGE LED
LED +B
DC OUT
CN112
W714
EVER 5V
CHARGE
CHARGE REF
BATT/EXT
ACV 6.5/E4
VIDEO 5V
DD-54 BOARD
(See Page 172)
CN351
VTR UNREG
CAM UNREG
MOTOR UNREG
IC351
DC/DC CONVERTER
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
TIMER LATCH, SHORT CIRCUIT PROTECT
POW CONT
CTL B
CTL C,D
2.5V
L358
L359
Q354 SWITCHING
T351
D351(1/2) −8.5V RECT
D351(1/2) 15V RECT
L366
L367
Q360 EMERGENCY DETECT
Q356 SWITCHING
L361
Q358
L368
L369
L370
CAM 5V
D 5V
EVF 5V
CAM 5V CONT(LOW ACTIV)
Q357 SWITCHING
L362
L371
D4V
Q355 SWITCHING
L360
L365
L364
L363
AU 5V
S/S 5V
VIDEO 5V
VTR ON(HIGH ACTIV)
CN352
IC352
DRUM/CAPSTAN PWM DRIVE
TRIANGLE
MOTOR UNREG
VC-129 BOARD
(See Page 94, 118, 121, 126, 132, 136,
Q204(1/2)
CAM −8.5V
Q203(1/2)
CAM 15V
Q205,Q203(1/2) CAM 15V,CAM−8.5V SWITCH
SERVO/S
VPP
VDD
A VDD
A VREF
BATT SE
IC90
EEPROM
D5V
VTR UNRG
PS901
Q204(1/2)
CAM DD ON
CN204


VC-129 BOARD
See Page 94, 118, 121, 126, 132, 136, 174)
CAPSTAN MOTOR
(See Page 134)
CAPSTAN FG
FP-423 BOARD
(See Page 131)
REEL FG SENSOR TAPE LED
AU-146 BOARD
IC801 – IC802
AUDIO
MIC 5V
IC981
IC982
MIC AMP
MA-164 BOARD
(See Page 157)
(See Page 158)
CD-101 BOARD
(See Page 92)
IC721
CCD IMAGER
ELECTRIC VIEW FINDER
(See Page 167)
VF-55 BOARD
IC901
VIDEO AMP H,V DRIVE
(See Page 168)
VF-56 BOARD
VIDEO OUT
FBT
EVF 5V
CAM -8.5V
CAM 15V
CAM 5V
D5V
D4V
IC201
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
BATT SENSE
Q204(1/2)
Q203(1/2)
Q205, Q203(1/2)
CAM15V, CAM-8.5V SWITCH
IC203
REEL FG AMP DFG/DPG AMP TAPE END, DEW DETECT
IC202
ATF SERVO CLOG DETECT PB SP/LP DETECT
IC204
CAPSTAN MOTOR DRIVE
IC205
DRUM MOTOR DRIVE
IC101
VIDEO(2) (REC/PB AMP)
IC551 – IC552
IC401 – IC406
IC302 IC303 IC306
IC101 IC071
VIDEO(1) (Y/CHROMA PROCESS)
IC905
CHARACTER GENERATOR
VTR UNREG
PS201
Q202
5V REG
MOTOR 5V
S/S 5V
VIDEO 5V
IC901
EEPROM
IC206
VOLTAGE ERROR AMP
LOADING MOTOR DRIVE
AU 5V
IC904
LANC I/O
EVER 5V
UNREG
5.6V REG
CURRENT LIMITER
PWM CONT
LANC OUT
LANC DC
BACK UP V
IC903
MODE CONTROL
BATT SENS
LANC PWR ON
BATT IN
CLK 8M/32K
RESET
LI PRE END
CAM DD ON
VTR DD ON
VTR MODE SW
CAM+STBY SW
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
IC902
5V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
PS901
D901
Q204(1/2)
CAM DD ON
LI 3V
CN303
CN207
CN201
CN304
CN305
CN911
IC602
TIMING GENERATOR
IC604
A/D CONVERTER
IC603
S/H AGC
IC601
V DRIVE
IC659
CAMERA CORE
IC660 IC661
SYNC GENERATOR
IC651
EEPROM
IC653
CAMERA CONTROL
IC654
A/D CONVERTER (EVR)
IC656
OPD
CN651 FOR CHECK
CN601
CN652
LANC DC
LANC SIG
LD-63 BOARD
(See Page 103)
IC751
AUTO FOCUS CONTROL
IC752
IC759 IC760
ZOOM MOTOR PREDRIVE
IC758
ZOOM MOTOR DRIVE
IC754
IRIS DRIVE
IC755
IRIS HALL AMP, BIAS
IC753
FOCUS MR SENS AMP
IC756 IC757
FOCUS DRIVE
MT5V
CN751
MR SENS Vcc
FOCUS MR SENSOR
LENS BLOCK
BRIGHT RING FOCUS RING
S113 LOCK
STANDBY
S114 POWER
CAMERA
OFF
PLAYER
CF-33 BOARD
(See Page 139)
ZOOM SW FUNCTION SW
LI 201 LITHIUM BATTERY
(See Page 139)
FK-33 BOARD
IC251
REMOTE CONTROL RECEIVER
RE-23 BOARD
(See Page 140)
IC201
REMOTE CONTROL RECEIVER
RE-22 BOARD
(See Page 140)

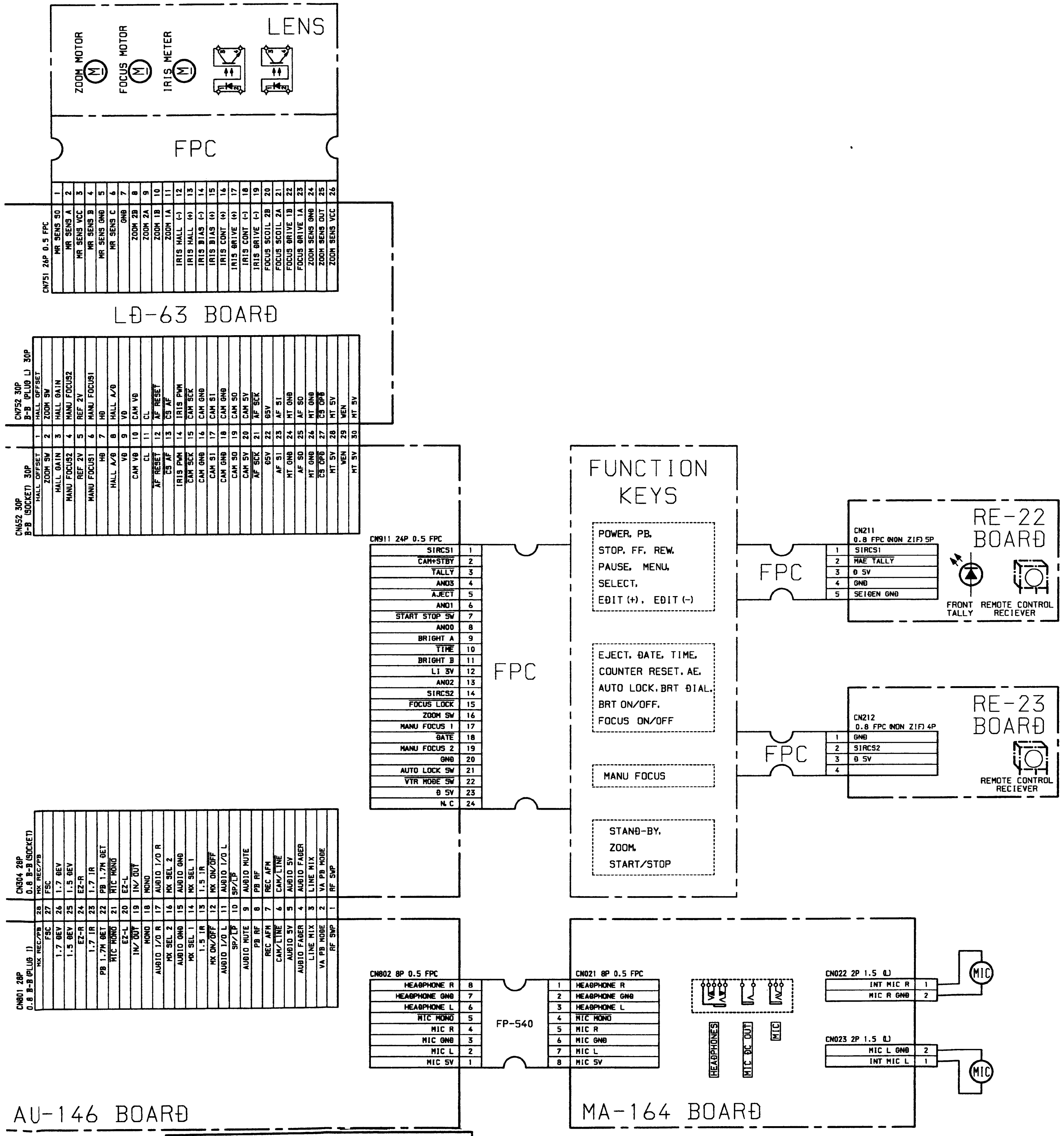
SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
BATTERY TERMINAL
PS081
PS082
PS083
FU-111 BOARD
W011 1.5 BOARD IN 6P
ACV GND 2
ACV GND 1
ACV UNREG 2
ACV GND 1
BATT GND 2
BATT GND 1
W012 BOARD IN 6P 1.5
UNREG GND 3
UNREG GND 2
UNREG GND 1
MOTOR UNREG
CAM UNREG
VTR UNREG
DF-51
CN351 6P (L) 1.5
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1 (NC)
UNREG GND 2
UNREG GND 3
DC/DC CON
SHIELD CASE
DD-54 BOARD
CN352 0.8 B-B (SOCKET) 30P
FP-537 (B TO B) WITH CONNECTOR
0.8 B-B (PLUG 1) 30P
CN204 0.8 B-B (SOCKET) 30P
CN002 0.8 B-B (PLUG L) 14P CPC
LANC SIG
N.C.
GND
CAP FG
REC 1B
REC 2B
REC 1A
REC 2A
RF SWP
1/2 RF SWP
PB RF CH1
PB RF CH2
RF GND
PB RF
CN305 0.5 FPC 24P
FP-605
W114 24P 0.8
EF-53
CN111 6P 1.5 (L)
BATT GND
BATT GND
ACV UNREG
ACV UNREG
ACV GND
ACV GND
EZ-3 BOARD
CN113 20P
S-Y OUT
S-C OUT
VIDEO OUT
VIDEO GND
AUDIO OUT R
AUDIO OUT L
AUDIO GND
LANC SIG
LANC DC
LANC GND
N.C.
ACV GND
ACV GND
BATT/ EXT
CHARGE INH
RF DC OUT
V.C.
ACV UNREG
ACV UNREG
N.C
EASY CNECTION
CN112 17P 0.5 FPC
FPC
S VIDEO
VIDEO
DC OUT
AUDIO L
AUDIO R
REMOTE
CHARGE LED
JACK BOARD
ELECTRIC VIEWFINDER
CN902 10P 0.8 B-B
BRT A
BRT B
BRT C
EVF 5V
HD
GND
VIDEO
GND
DV1
DV2
CN951 10P 0.8 B-B
W951 5P BOARD IN
G1
H
H
N.C.
G2
DY
CN952 4P 1.5MM SMT-L
DV1
DV2
DH1
DH2
TALLY
VF-55 BOARD
VF-56 BOARD
CN901 7P 0.5 FPC
AFC
TALLY LED
EVF OUT
EVF GND
EVF 5V
N.C.
FP-603
CN303 7P 0.8 FPC (NON ZIF)
EVF UNREG GND
EVF UNREG
LCD
(DISPLAY LCD)
FPC
CN912 24P 0.5 FPC
CN721 14P (0.8MM)
CN601 14P 0.8 B-B (SOCKET)
PG
V SUB
R/P AMP
SHIELD CASE
VC-129 BOARD
CN001 15P 0.5 FPC
CN203 2P 1.5
LOAD
UNLOAD
CN202 6P 0.5 FPC
CN206 12P 0.5 FPC
CN207 18P 0.5 FPC
CN201 15P 0.5 FPC
VIDEO HEAD
DEW SENSOR MODE SW
FP-550
CARD EDGE
FP-423
M903 LOADING MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
MD FL-MECHA

FRAME **FRAME**


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
ELECTRIC VIEWFINDER
CRT
DY
TALLY
VF-55 BOARD
VF-56 BOARD
CN902 10P 0.8 B-B
CN951 10P 0.8 B-B
W951 5P BOARD IN
CN952 4P 1.5MM SMT-L
CN901 7P 0.5 FPC
FP-603
CN303 7P 0.8 FPC (NON ZIF)
Y LCD)
LENS
ZOOM MOTOR
FOCUS MOTOR
IRIS METER
FPC
CN751 26P 0.5 FPC
LD-63 BOARD
CN752 30P B-B (PLUG L) 30P
CN652 30P B-B (SOCKET) 30P
CD-101 BOARD
W721 16P (0.8MM)
FP-580
0.8 B-B (PLUG L) 16P
CN401 16P 0.8 B-B (SOCKET)
R/P AMP
SHIELD CASE
VC-129 BOARD
CN911 24P 0.5 FPC
FUNCTION KEYS
POWER, PB,
STOP, FF, REW,
PAUSE, MENU,
SELECT,
EDIT (+), EDIT (-)
EJECT, DATE, TIME,
COUNTER RESET, AE,
AUTO LOCK, BRT DIAL,
BRT ON/OFF,
FOCUS ON/OFF
MANU FOCUS
STAND-BY,
ZOOM,
START/STOP
CN211 0.8 FPC (NON
CN212 0.8 FPC (NON
CN202 6P 0.5 FPC
DEW SENSOR MODE SW
CN206 12P 0.5 FPC
CN207 18P 0.5 FPC
FP-550
CARD EDGE
CN201 15P 0.5 FPC
FP-423
CN651 18P 0.8 B-B (PLUG L) CPC
CN304 28P 0.8 B-B (SOCKET)
CN801 28P 0.8 B-B (PLUG L)
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
MOTOR
MD FL-MECHA
AU-146 BOARD
CN802 8P 0.5 FPC
FP-540
CN021 8P 0.5 FPC
HEADPHONES
MIC DC OUT
MIC
CN022 1P 1.5 U
CN023 1P 1.5 U
MA-164 BOARD

FRAME FRAME


LENS
ZOOM MOTOR
FOCUS MOTOR
IRIS METER
FPC
CN751 26P 0.5 FPC
LD-63 BOARD
CN752 30P B-B (PLUG L) 30P
CN652 30P B-B (SOCKET) 30P
CN911 24P 0.5 FPC
SIRCS1 1
CAM+STBY 2
TALLY 3
AN03 4
AJECT 5
AN01 6
START STOP SW 7
AN00 8
BRIGHT A 9
TIME 10
BRIGHT B 11
L1 3V 12
AN02 13
SIRCS2 14
FOCUS LOCK 15
ZOOM SW 16
MANU FOCUS 1 17
DATE 18
MANU FOCUS 2 19
GND 20
AUTO LOCK SW 21
VTR MODE SW 22
D 5V 23
N.C 24
FPC
FUNCTION KEYS
POWER, PB,
STOP, FF, REW,
PAUSE, MENU,
SELECT,
EDIT (+), EDIT (-)
EJECT, DATE, TIME,
COUNTER RESET, AE,
AUTO LOCK, BRT DIAL,
BRT ON/OFF,
FOCUS ON/OFF
MANU FOCUS
STAND-BY,
ZOOM,
START/STOP
FPC
RE-22 BOARD
CN211 0.8 FPC (NON ZIF) 5P
1 SIRCS1
2 REC TALLY
3 D 5V
4 GND
5 SEIGEN GND
FRONT TALLY
REMOTE CONTROL RECIEVER
FPC
RE-23 BOARD
CN212 0.8 FPC (NON ZIF) 4P
1 GND
2 SIRCS2
3 D 5V
4
REMOTE CONTROL RECIEVER
CN304 28P 0.8 B-B (SOCKET)
CN801 28P 0.8 B-B (PLUG I)
AU-146 BOARD
CN802 8P 0.5 FPC
HEADPHONE R 8
HEADPHONE GND 7
HEADPHONE L 6
MIC MONO 5
MIC R 4
MIC GND 3
MIC L 2
MIC 5V 1
FP-540
CN021 8P 0.5 FPC
1 HEADPHONE R
2 HEADPHONE GND
3 HEADPHONE L
4 MIC MONO
5 MIC R
6 MIC GND
7 MIC L
8 MIC 5V
HEADPHONES
MIC DC OUT
MIC
CN022 2P 1.5 (L)
INT MIC R 1
MIC R GND 2
CN023 2P 1.5 (L)
MIC L GND 2
INT MIC L 1
MIC
MIC
MA-164 BOARD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.

  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole is omitted.

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

Four types of printed wiring board diagrams have been provided for the above conductor and component sides in this service manual (those with patterns and those without).

- **For schematic diagrams.**
- Caution when replacing chip parts.

  New parts must be attached after removal of chip.

  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms.

  Chip resistor are 1/16W unless otherwise noted.

  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μ μF.

  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊣▭⊢ : nonflammable resistor.
- ⊣▭⊢ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repeair.*
- ━━ : B+ Line.*
- ‐ ‐ ‐ : B– Line.*
- ⇨ : IN/OUT direction of (+, –) B LINE.*

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

*: indicated by the color red.

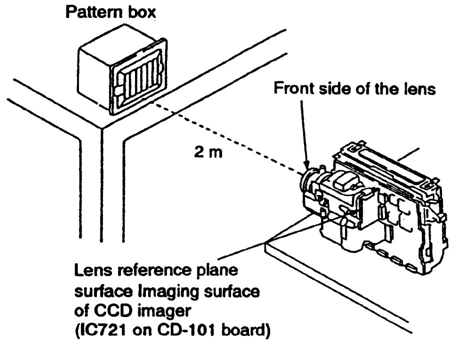
- **Measuring conditions voltage value and waveform.**

(CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.*

  Readings are taken with a digital multimeter (DC 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

1. Connection


Pattern box
Front side of the lens
2 m
Lens reference plane
surface Imaging surface
of CCD imager
(IC721 on CD-101 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

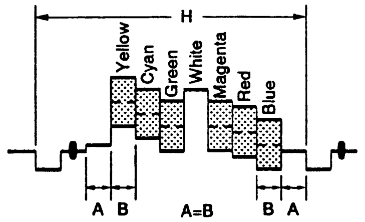

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

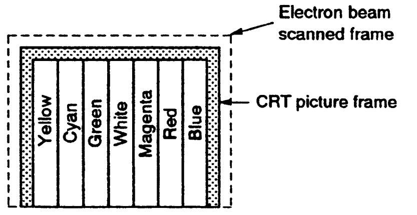

Electron beam scanned frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, VIEW FINDER block)

- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

There are not the external input terminal (VIDEO/AUDIO IN) and REC switch in AEP, UK model. Accordingly, perform as the followings for REC mode.*

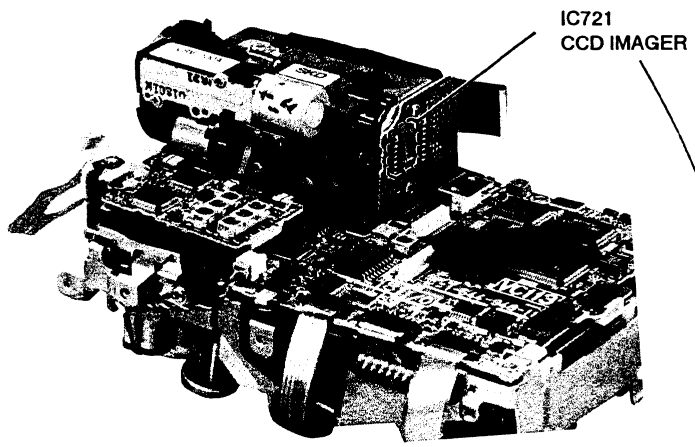
Signal input: Refer to the video signal input method for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 266, Fig. 9-1).*

REC mode: Refer to the transition method to REC mode for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 265, 9-1-3).*

CD-101 (CCD IMAGER), VC-129 (CAMERA 1) SCHEMATIC DIAGRAMS

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. CD-101 BOARD: 1000 series, VC-129 BOARD: 2000 series —

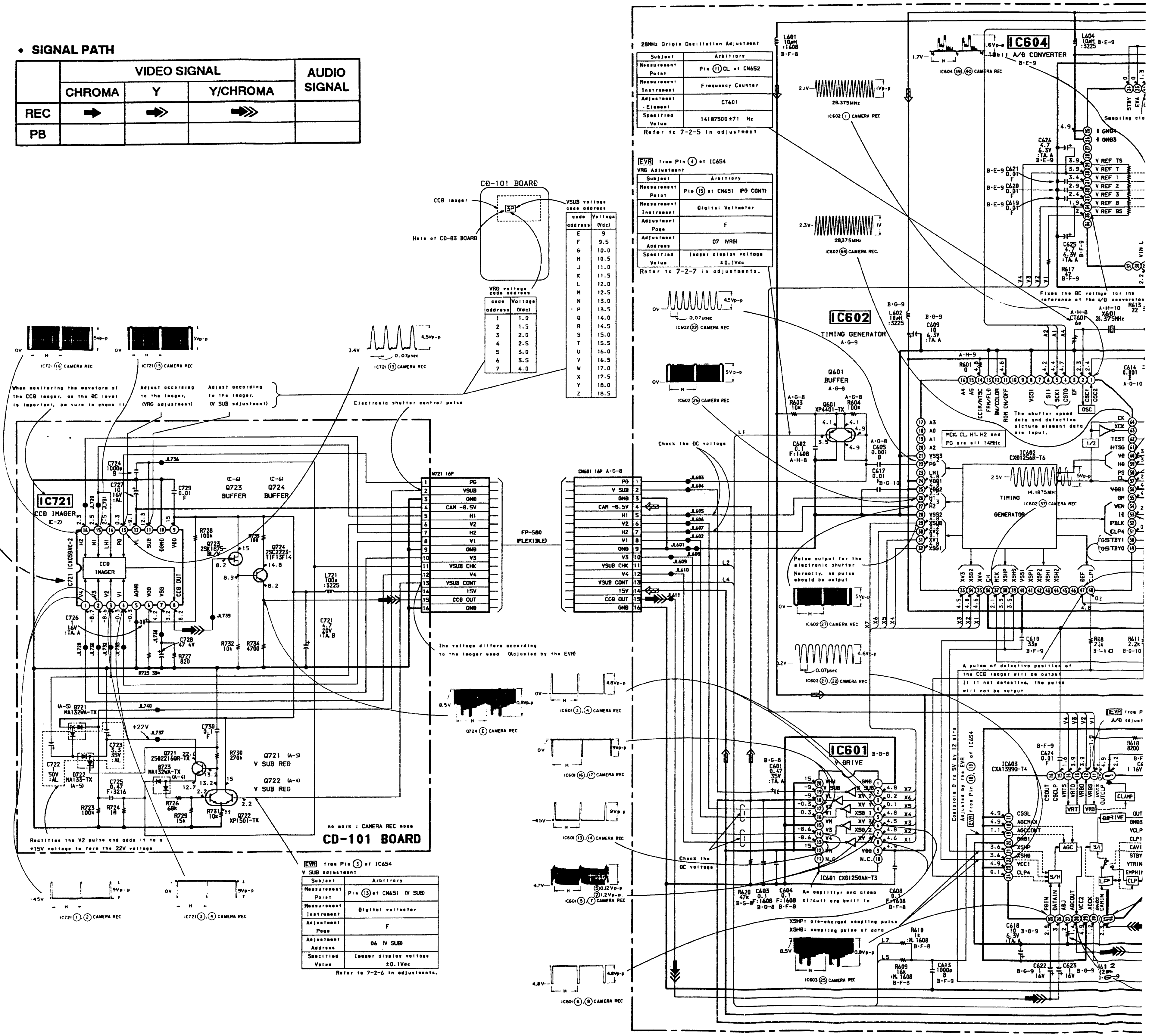

IC721
CCD IMAGER

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	
PB				

Precautions Upon Replacing CCD Imager

- Some CCD imagers (IC721 of CD-101 board) of this unit require the correction data.
  The correction data has been input to page F, addresses 1F to 2E of the camera EEPROM (IC651 of VC-129 board). Moreover, the same data has also been input as backup data to page D, addresses E0 to EF of the VTR EEPROM (IC901 of VC-129 board).
  This correction data is not required for CCD imagers which are provided for repairs. Therefore, input 00 to page F, addresses 1F to 2E of the camera EEPROM. And input 00 to page D, addresses E0 to EF of VTR EEPROM. For details of inputting, refer to "Camera Adjustments".
- The CD-101 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.


IC721 CCD IMAGER
CD-101 BOARD
Q723 BUFFER
Q724 BUFFER
Q721 V SUB REG
Q722 V SUB REG
FP-580 (FLEXIBLE)
IC604 A/D CONVERTER
IC602 TIMING GENERATOR
Q601 BUFFER
IC601 DRIVE
IC603
no mark : CAMERA REC mode
Electronic shutter control pulse
The voltage differs according to the imager used (Adjusted by the EVR)
Rectifies the V2 pulse and adds it to a +15V voltage to form the 22V voltage
Pulse output for the electronic shutter. Normally, no pulse should be output
A pulse of defective position of the CCD imager will be output. If it not defective, the pulse will not be output
XSHP: pre-charged sampling pulse
XSHD: sampling pulse of data
Check the DC voltage
Fixes the DC voltage for the reference of the A/D converter
CCD imager
Hole of CD-83 BOARD
3P

28MHz Origin Oscillation Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑪ CL of CN652
Measurement Instrument	Frequency Counter
Adjustment Element	CT601
Specified Value	14187500 ±71 Hz

Refer to 7-2-5 in adjustment

EVR from Pin ④ of IC654
VRG Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑮ of CN651 (PG CONT)
Measurement Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	Imager display voltage ±0.1Vdc

Refer to 7-2-7 in adjustments.

EVR from Pin ③ of IC654
V SUB adjustment

Subject	Arbitrary
Measurement Point	Pin ⑬ of CN651 (V SUB)
Measurement Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	06 (V SUB)
Specified Value	Imager display voltage ±0.1Vdc

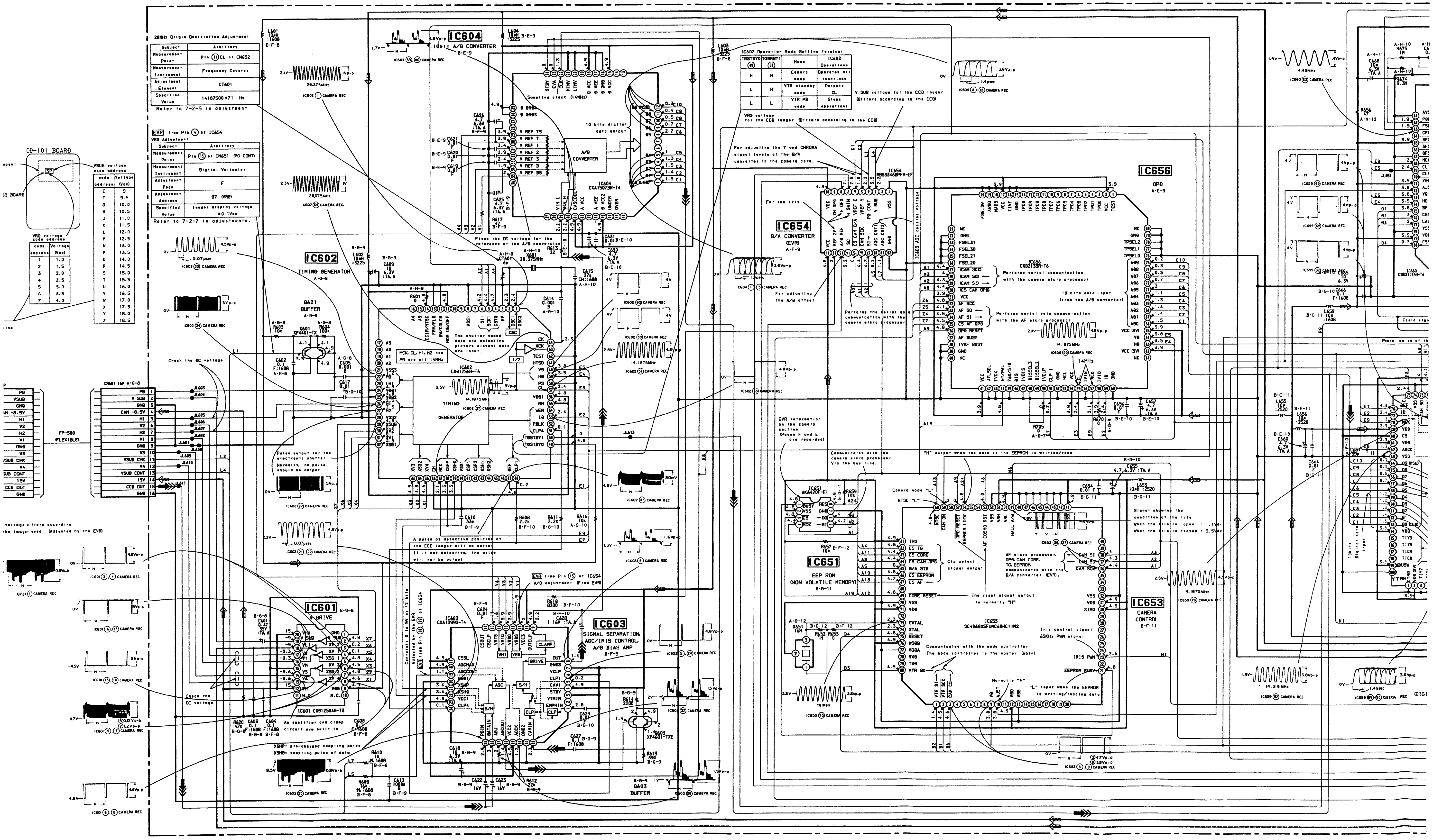
Refer to 7-2-6 in adjustments.

VRG voltage code address

code address	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code address

code address	Voltage (Vdc)
E	9
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5


CD-101 BOARD
3P
VSUB voltage code address
VRG voltage code address
CN601 16P A-G-8
FP-580 (FLEXIBLE)
IC604 A/D CONVERTER B-E-9
IC604 CXA1507BR-T4
IC602 TIMING GENERATOR A-G-9
IC602 CXD1256R-T6
Q601 BUFFER A-G-8
IC601 DRIVE B-G-8
IC601 CXD1250AN-T5
IC603 SIGNAL SEPARATION, AGC/IRIS CONTROL, A/D BIAS AMP B-F-9
IC603 CXA1399Q-T4
Q603 BUFFER
IC654 D/A CONVERTER (EVR) A-F-9
IC654 MB88346BPFV-EF
IC656 DPB A-E-9
IC656 CXD2133R-T6
IC651 EEP ROM (NON VOLATILE MEMORY) B-D-11
IC651 AK6420F-E1
IC653 CAMERA CONTROL B-F-11
IC653 SC406805FUMC6BHC11M2
28.375MHz
14.1875MHz
CAMERA REC

28MHz Origin Oscillation Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑪ CL of CN652
Measurement Instrument	Frequency Counter
Adjustment Element	CT601
Specified Value	14187500±71 Hz

Refer to 7-2-5 in adjustment

EVR from Pin ④ of IC654
VRG Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑮ of CN651 (PG CONT)
Measurement Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	Imager display voltage ±0.1Vdc

Refer to 7-2-7 in adjustments.

VRG voltage code address

code address	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code address

code address	Voltage (Vdc)
E	9
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

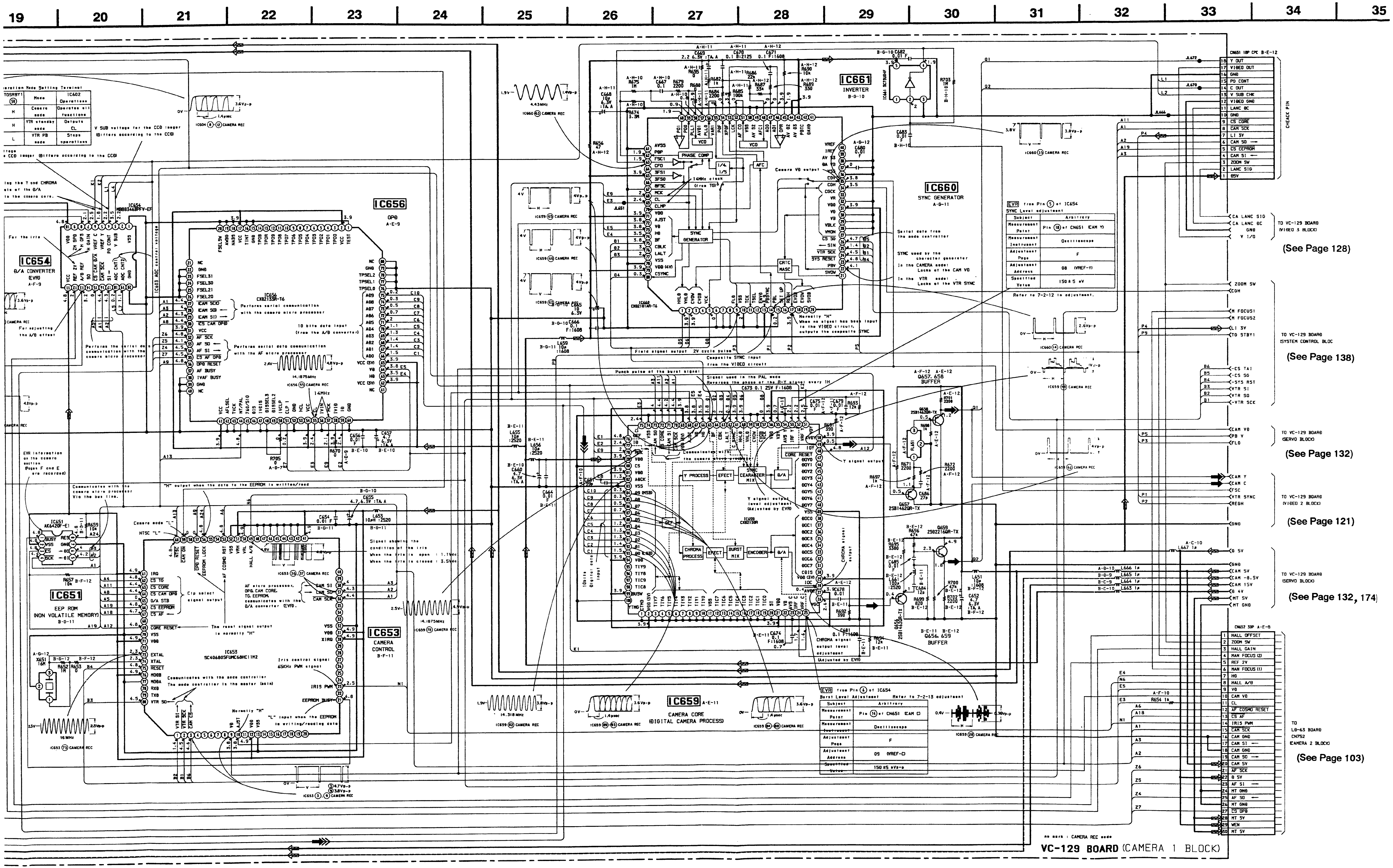
IC602 Operation Mode Setting Terminal

TGSTBY0 ㊾	TGSRBY1 ㊿	Mode	IC602 Operations
H	H	Camera mode	Operates all functions
L	H	VTR standby mode	Outputs CL
L	L	VTR PB mode	Stops operations

VRG voltage for the CCD imager (Differs according to the CCD)

For adjusting the Y and CHROMA signal levels of the D/A converter in the camera core.

09


19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
IC654
D/A CONVERTER
EVR
IC656
OPD
CXD2135R-T6
IC661
INVERTER
IC660
SYNC GENERATOR
CXD2101AR-T6
IC651
EEP ROM
(NON VOLATILE MEMORY)
IC653
CAMERA CONTROL
SC406805FUMC68HC11M2
IC659
CAMERA CORE
(DIGITAL CAMERA PROCESS)
CXD2150R
Q657, 658
BUFFER
Q656, 659
BUFFER
CN651 18P
CN652 30P
CHECK PIN
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 128)
TO VC-129 BOARD (SYSTEM CONTROL BLOC)
(See Page 138)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 132)
TO VC-129 BOARD (VIDEO 2 BLOCK)
(See Page 121)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 132, 174)
TO LB-63 BOARD CN752 (CAMERA 2 BLOCK)
(See Page 103)
PHASE COMP
VCO
AFC
SYNC GENERATOR
Y PROCESS
EFECT
SYNC CEARATER MIX
B/A
CHROMA PROCESS
BURST MIX
ENCODER
14.318MHz
4.43MHz
14.1875MHz
16MHz
** mark : CAMERA REC mode
VC-129 BOARD (CAMERA 1 BLOCK)

CAMERA 1 CAMERA 1

CD-101 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-101 BOARD: 1000 series —

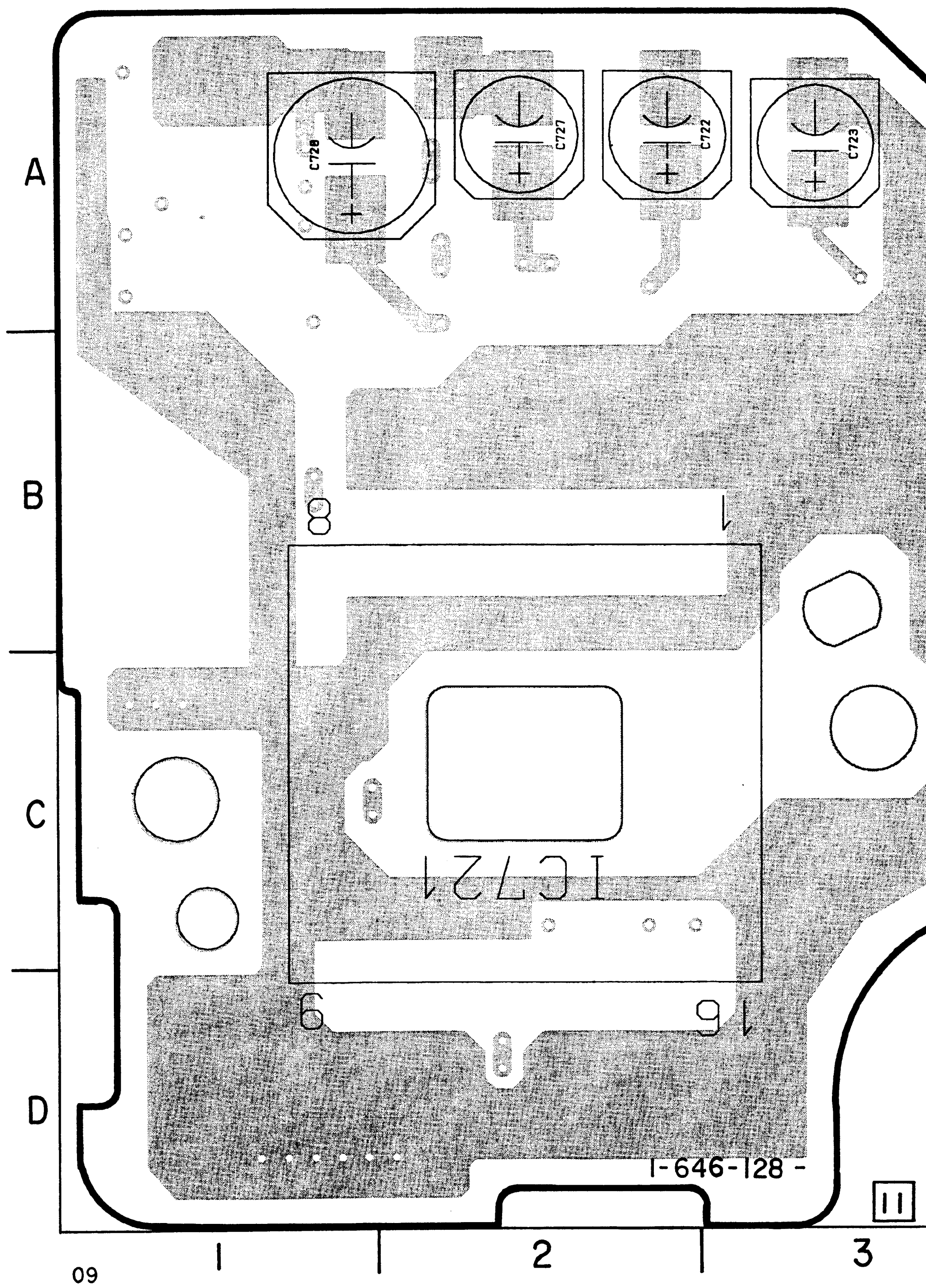
- Refer to page 108 for Printed Wiring Board on the VC-129 board.

- **For printed wiring boards**
- CD-101 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

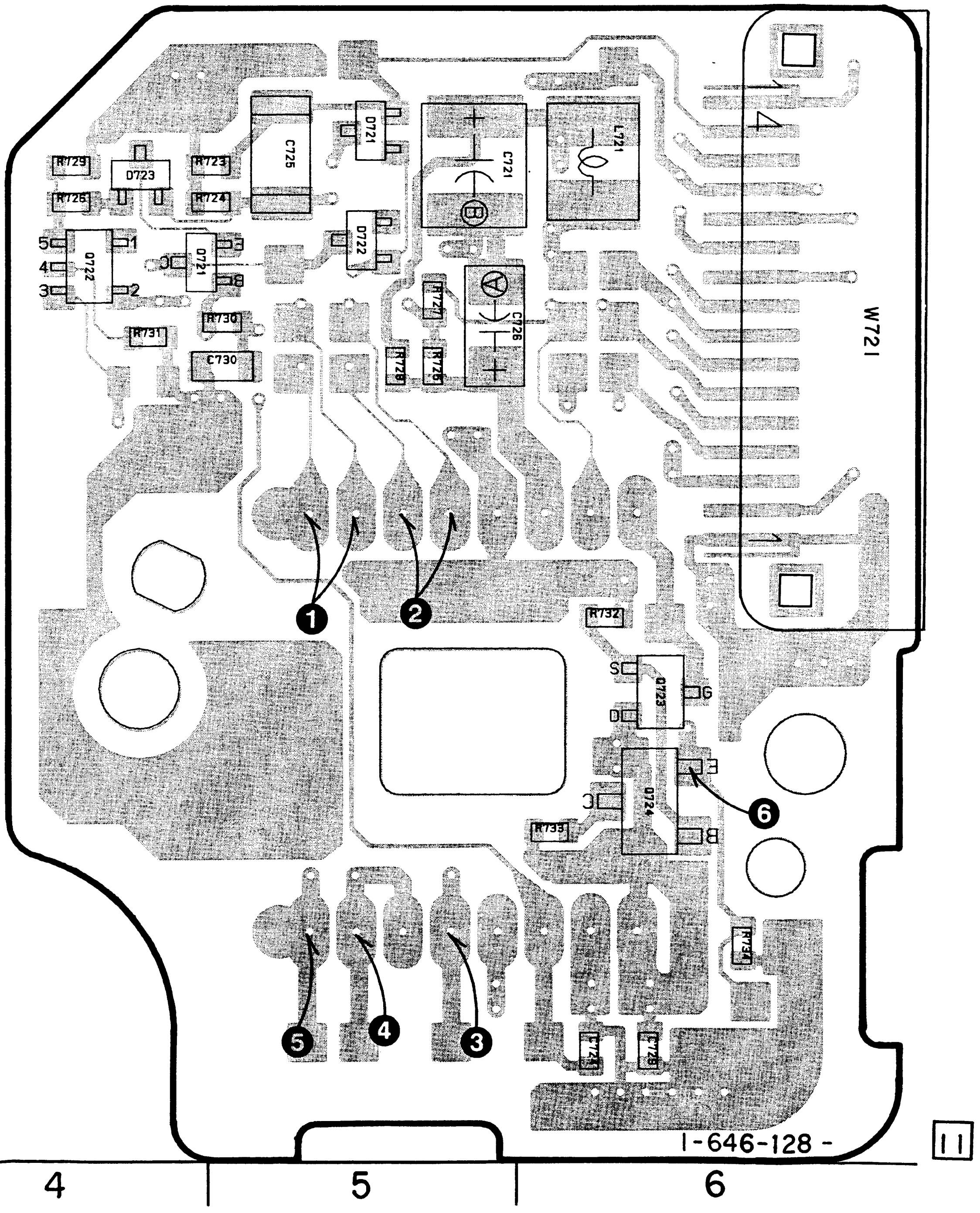
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

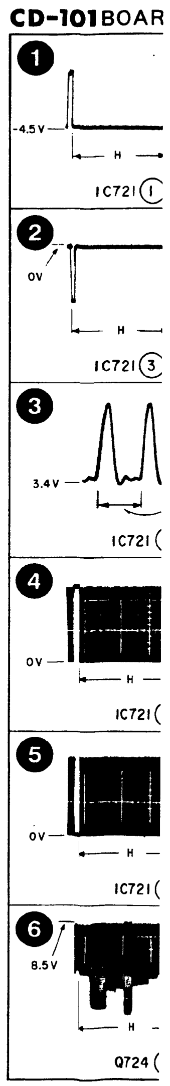
CD-101 BOARD (COMPONENT SIDE)


A
B
C
D
C728
C727
C722
C723
8
1
IC721
9
16
1-646-128 -
11
1
2
3

CD-101 BOARD (CONDUCTOR SIDE)


R729
D723
R723
R726
R724
C725
D721
C721
L721
Q722
Q721
D722
5
4
3
1
2
R731
R730
C730
R727
R728
C726
R725
W721
❶
❷
R732
S
Q723
G
D
Q724
R733
❻
R734
❺
❹
❸
1-646-128 -
11
4
5
6

09

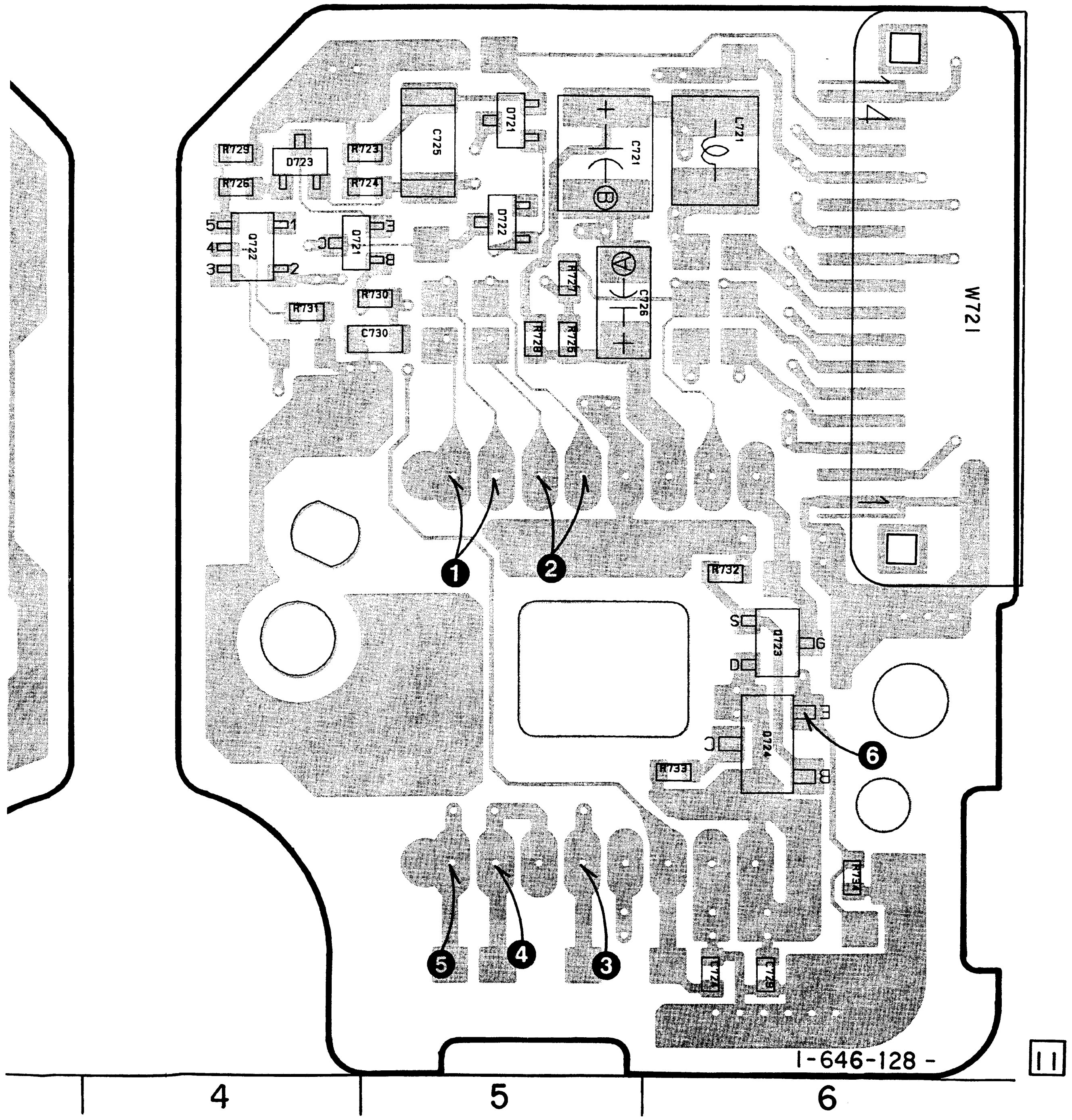

CD-101 BOAR
❶
-4.5V
H
IC721①
❷
0V
H
IC721③
❸
3.4V
IC721(
❹
0V
H
IC721(
❺
0V
H
IC721(
❻
8.5V
H
Q724(

wever, the patterns
e diagram.

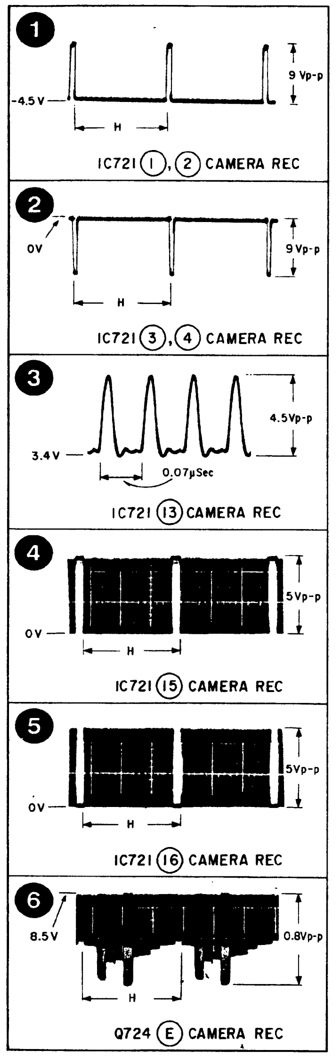
d.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

CD-101 BOARD (CONDUCTOR SIDE)


R729
R726
D723
R723
R724
C725
D721
C721
L721
Q722
5
4
3
1
2
Q721
D722
R727
R728
R725
C726
R730
R731
C730
W721
1
2
3
4
5
6
R732
Q723
S
G
D
Q724
C
B
E
R733
R734
R735
C729
1-646-128 -
11
4
5
6

CD-101BOARD



LD-63 (ZOOM LENS UNIT DRIVE) PRINTED WIRING BOARD

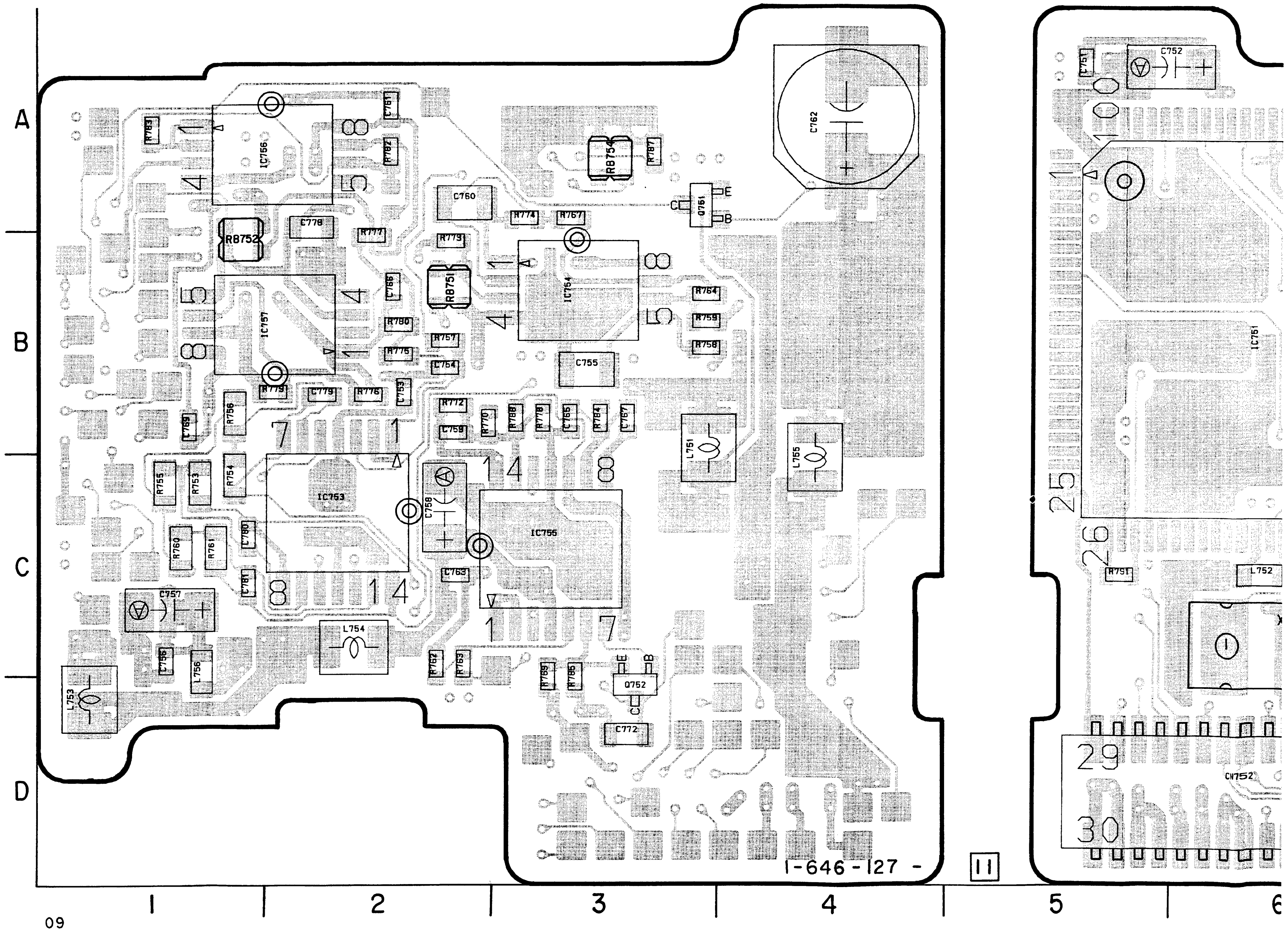
— Ref. No. LD-63 BOARD: 3000 series —

- **For printed wiring boards**
- LD-63 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

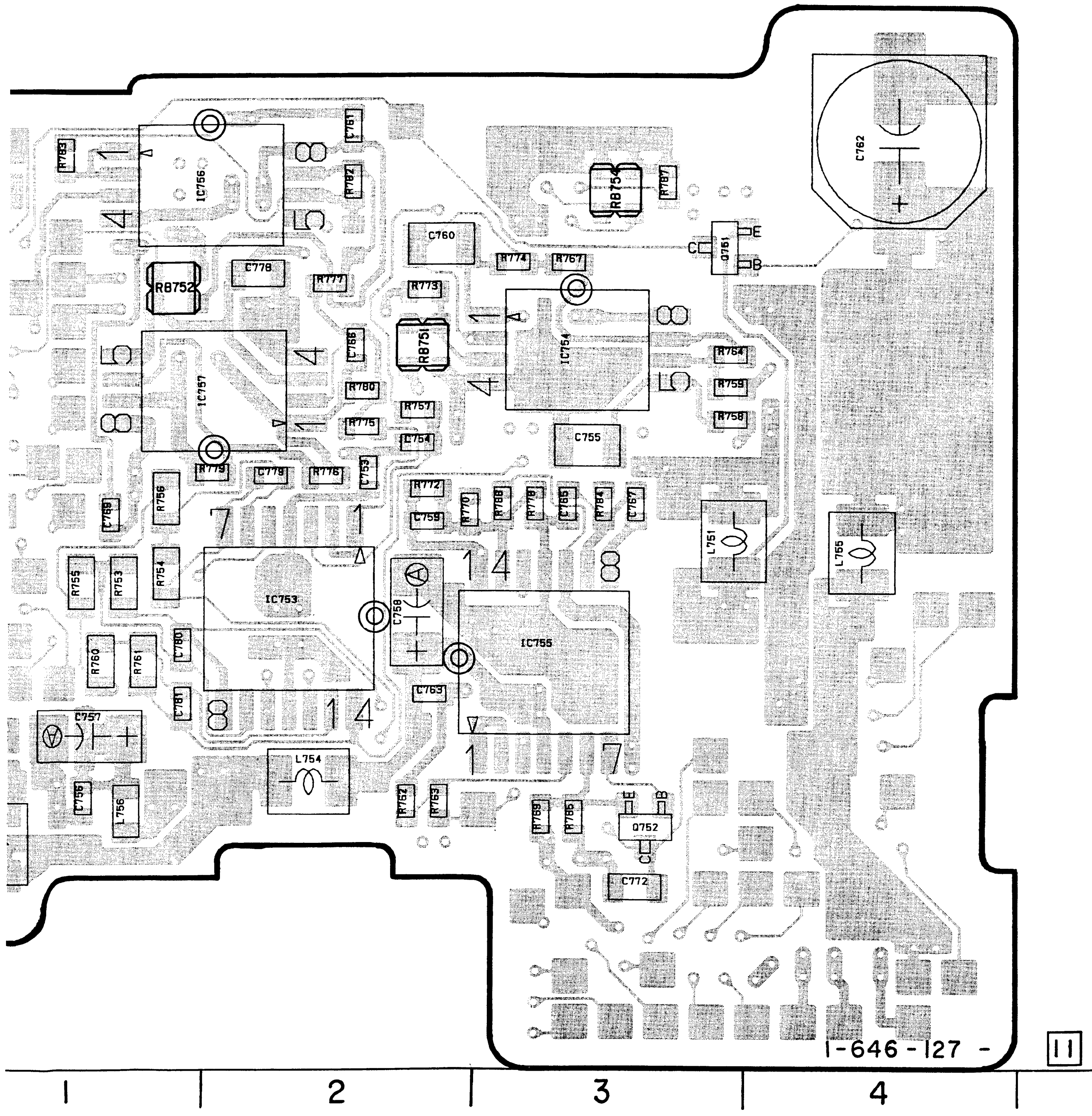
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

LD-63 BOARD (COMPONENT SIDE)

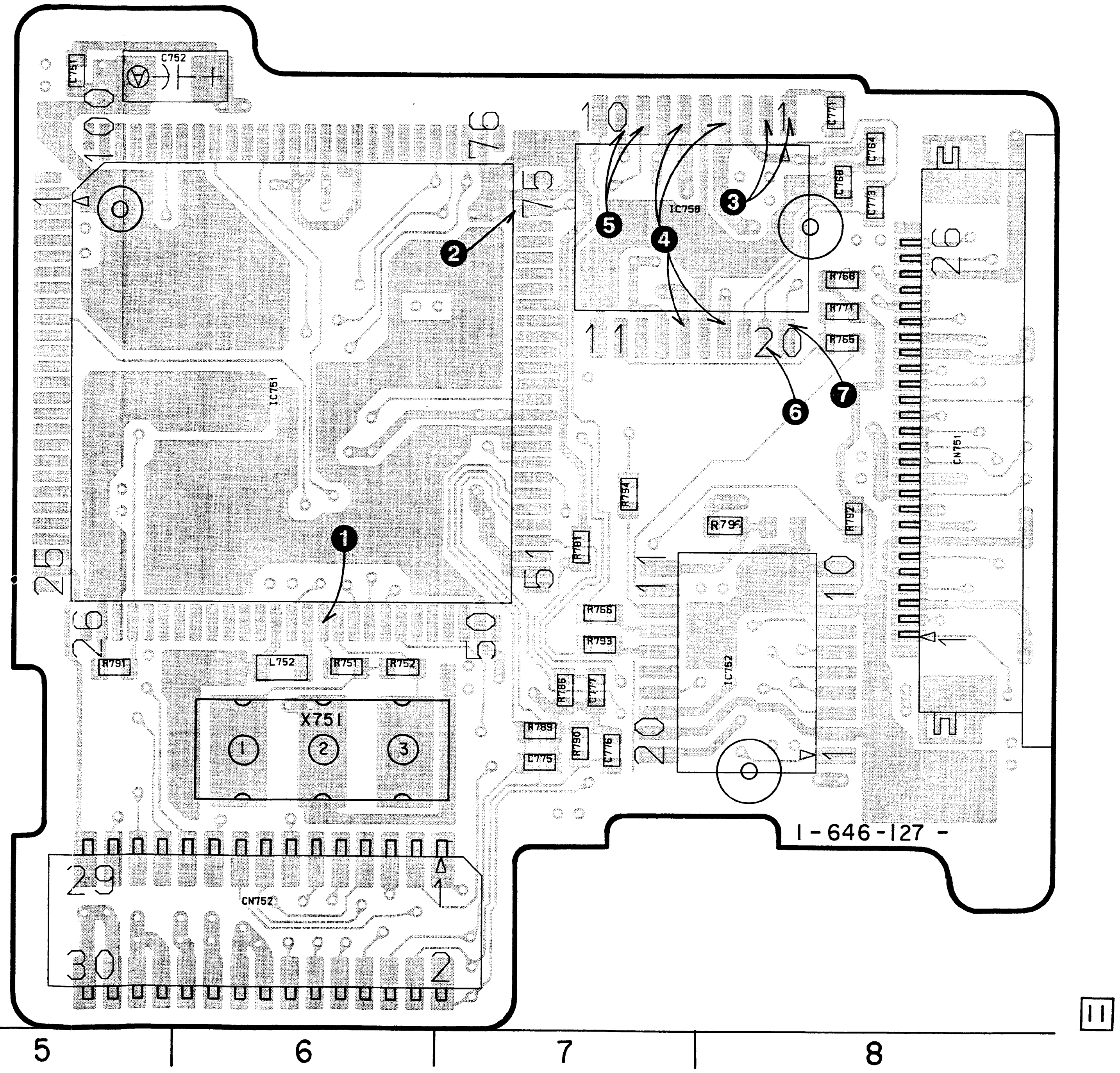
LD-63 BOAI


A
B
C
D
1
2
3
4
5
6
09
IC756
IC757
IC753
IC754
IC755
IC761
R8752
R8751
R8754
C760
C762
C755
C778
C757
C758
C752
C772
L751
L752
L753
L754
L755
Q751
Q752
R751
R774
R767
R777
R779
R780
R757
R775
R776
R772
R764
R759
R758
R755
R753
R754
R756
R760
R761
R762
R763
CN752
1-646-127 -
11
29
30
25
26
100

D-63 BOARD (COMPONENT SIDE)

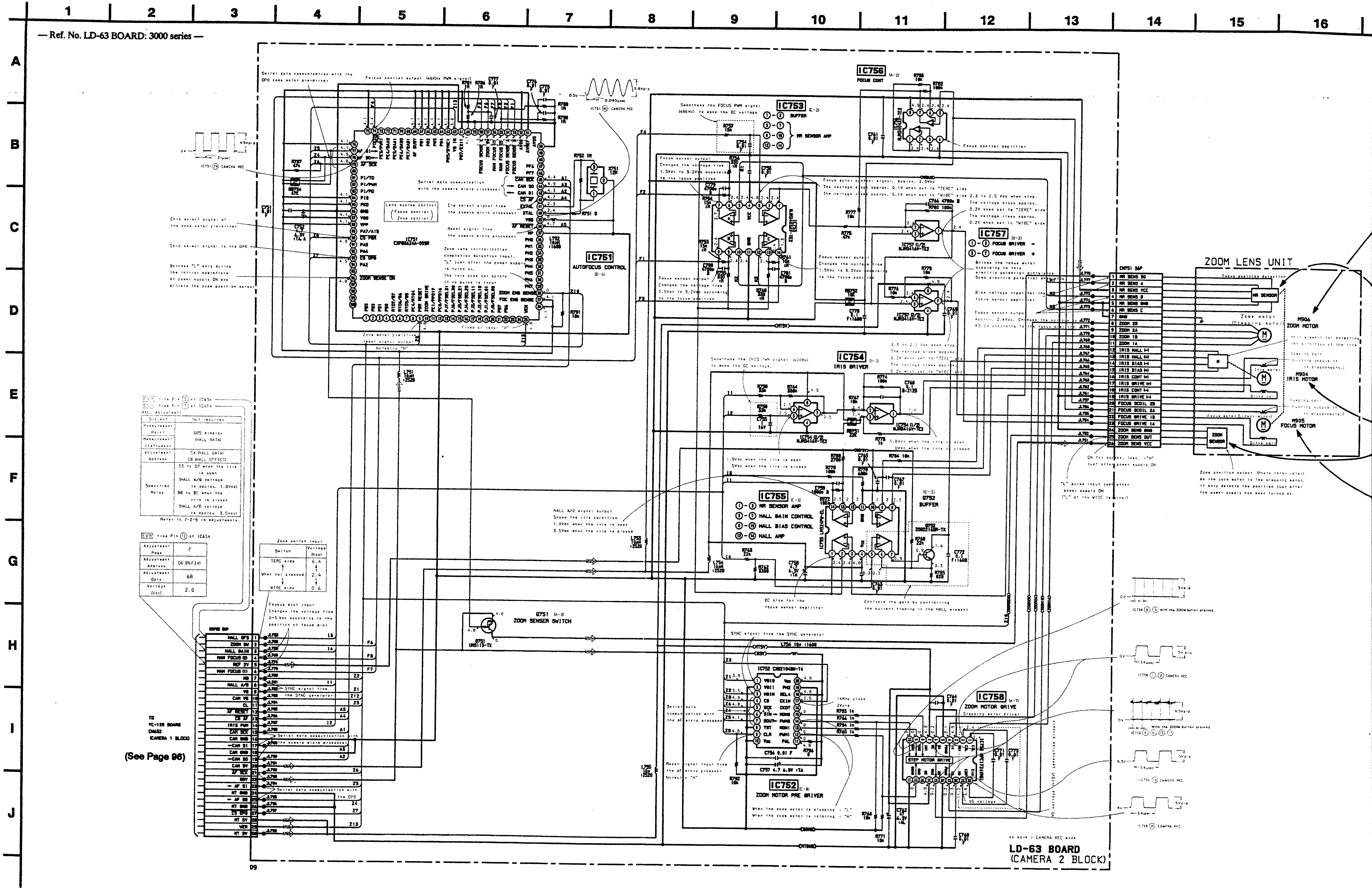

IC756
IC757
IC753
IC755
IC754
RB752
RB751
RB754
C762
C760
C778
C755
C758
C757
C763
C772
C759
C779
C753
C780
C781
C756
C769
R793
R782
R781
R787
R774
R767
R773
R777
R766
R780
R775
R757
R754
R764
R759
R758
R779
R776
R772
R770
R788
R778
R765
R784
R767
R756
R755
R753
R754
R760
R761
R762
R763
R789
R785
L751
L755
L754
L756
Q751
Q752
E
C
B
1-646-127-
11
1
2
3
4

LD-63 BOARD (CONDUCTOR SIDE)


C751
C752
IC751
IC758
IC762
CN751
CN752
X751
L752
R751
R752
R791
R768
R771
R765
R794
R781
R792
R793
R766
R786
C777
R789
R790
C775
C776
C771
C764
C768
C773
1
2
3
4
5
6
7
1
25
26
50
51
75
76
100
10
11
20
29
30
1-646-127-
11
5
6
7
8

LD-63 (ZOOM LENS UNIT DRIVE) SCHEMATIC DIAGRAM

— Ref. No. LD-63 BOARD: 3000 series —



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
IC751 CXP80424A-009R
IC751 AUTOFOCUS CONTROL
Lens system control (Focus control) (Zoom control)
IC753 BUFFER
MR SENSOR AMP
IC756 FOCUS CONT
IC757 FOCUS DRIVER
IC754 IRIS DRIVER
IC755 MR SENSOR AMP
HALL GAIN CONTROL
HALL BIAS CONTROL
HALL AMP
Q752 BUFFER
Q751 ZOOM SENSER SWITCH
IC752 ZOOM MOTOR PRE DRIVER
IC758 ZOOM MOTOR DRIVE
STEP MOTOR DRIVE
ZOOM LENS UNIT
MR SENSOR
M906 ZOOM MOTOR
M904 IRIS MOTOR
M905 FOCUS MOTOR
ZOOM SENSOR
CN751 26P
1 MR SENS SO
2 MR SENS A
3 MR SENS VCC
4 MR SENS B
5 MR SENS GND
6 MR SENS C
7 GND
8 ZOOM 2B
9 ZOOM 2A
10 ZOOM 1B
11 ZOOM 1A
12 IRIS HALL (−)
13 IRIS HALL (+)
14 IRIS BIAS (−)
15 IRIS BIAS (+)
16 IRIS CONT (+)
17 IRIS DRIVE (+)
18 IRIS CONT (−)
19 IRIS DRIVE (−)
20 FOCUS SCOIL 2B
21 FOCUS SCOIL 2A
22 FOCUS DRIVE 1B
23 FOCUS DRIVE 1A
24 ZOOM SENS GND
25 ZOOM SENS OUT
26 ZOOM SENS VCC
CN752 30P
1 HALL OFS
2 ZOOM SW
3 HALL GAIN
4 MAN FOCUS (2)
5 REF 2V
6 MAN FOCUS (1)
7 HD
8 HALL A/D
9 VD
10 CAM VD
11 CL
12 AF RESET
13 CS AF
14 IRIS PWM
15 CAM SCK
16 CAM GND
17 −CAM SI
18 CAM GND
19 −CAM SO
20 CAM 5V
21 AF SCK
22 D5V
23 − AF SI
24 MT GND
25 − AF SO
26 MT GND
27 CS OPS
28 MT 5V
29 VEN
30 MT 5V
TO VC-129 BOARD CN452 (CAMERA 1 BLOCK)
(See Page 96)
EVR from Pin ③ of IC654
EVR from Pin ⑦ of IC654
HALL Adjustment
Refer to 7-2-9 in adjustments.
EVR from Pin ⑫ of IC654
Zoom switch input
Foucos dial input Changes the voltage from 0~5 Vdc according to the position of focus dial
ON for approx. 1sec. :"H" just after power supply ON
Zoom position detect (Photo interrupter) As the zoom motor is the stepping motor, it only detects the position just after the power supply has been turned on.
LD-63 BOARD (CAMERA 2 BLOCK)
09

HALL Adjustment

Subject	Not required
Measurement Point Measurement Instrument	OOS display (HALL DATA)
Adjustment Address	OA (HALL DATA) OB (HALL OFFSET)
Specified Value	33 to 37 when the iris is open (HALL A/D voltage is approx. 1.0Vdc) B8 to BC when the iris is closed (HALL A/D voltage is approx. 3.5Vdc)

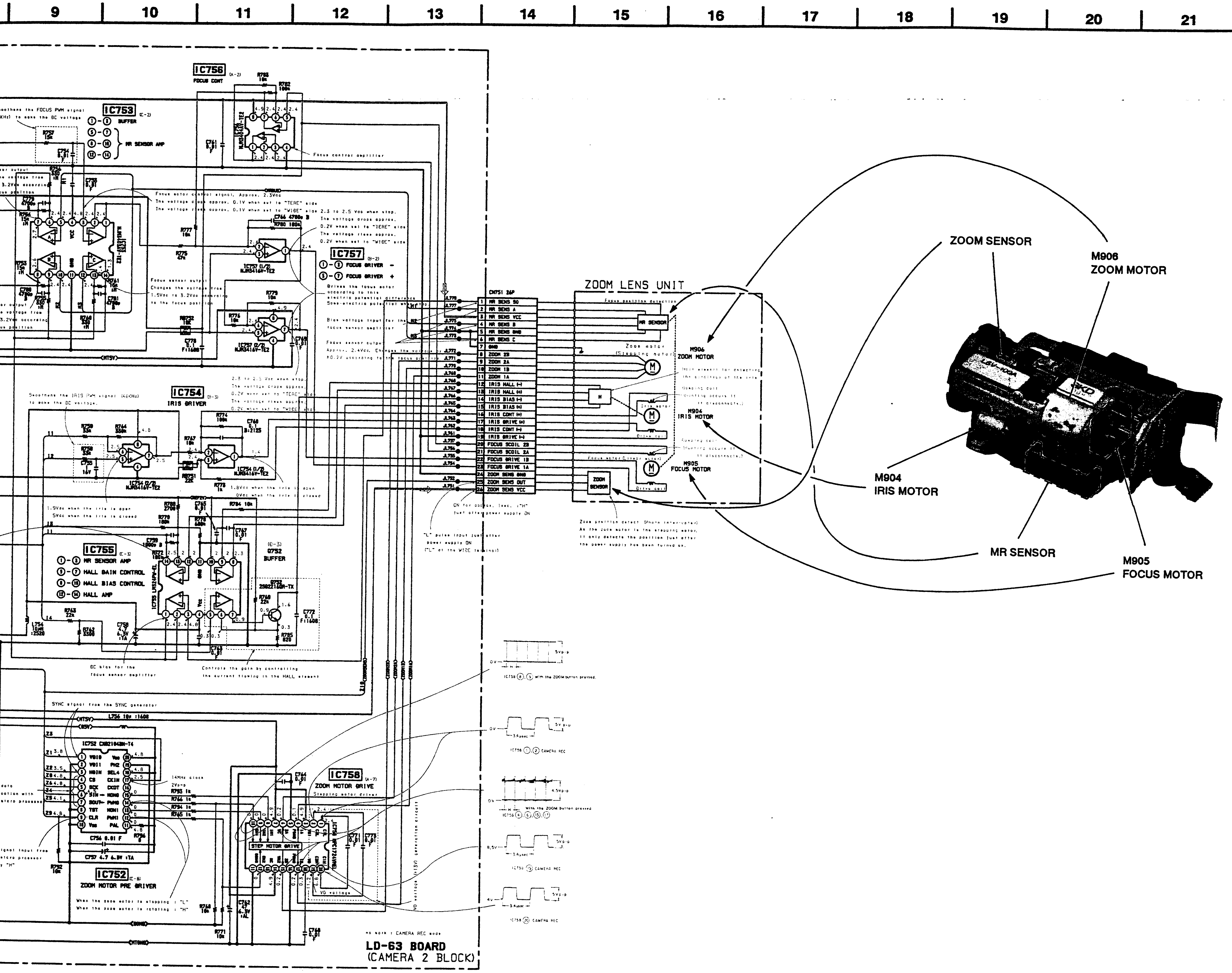
Refer to 7-2-9 in adjustments.

EVR from Pin ⑫ of IC654

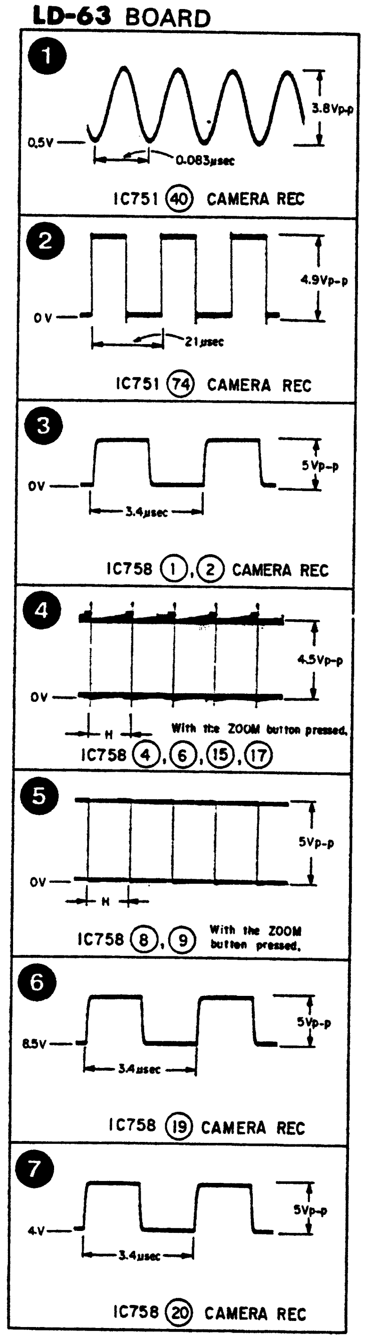
Adjustment Page	F
Adjustment Address	00 (REF2V)
Adjustment Data	68
Voltage (Vdc)	2.0

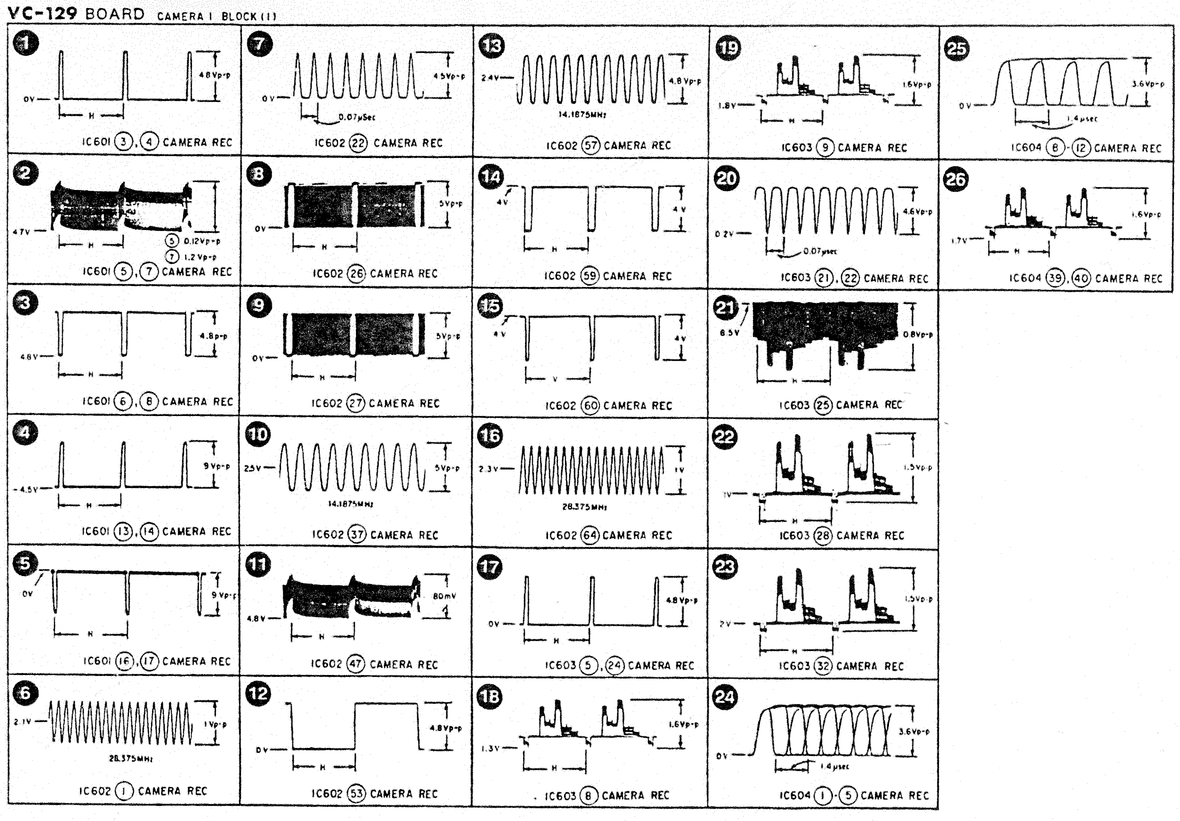
Zoom switch input

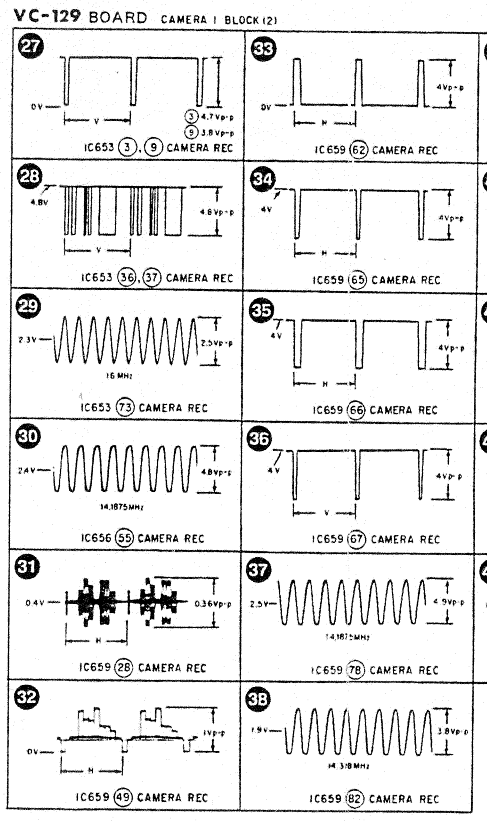
Switch	Voltage (Vdc)
TERE side	4.4
When not pressed	2.4
WIDE side	0.6

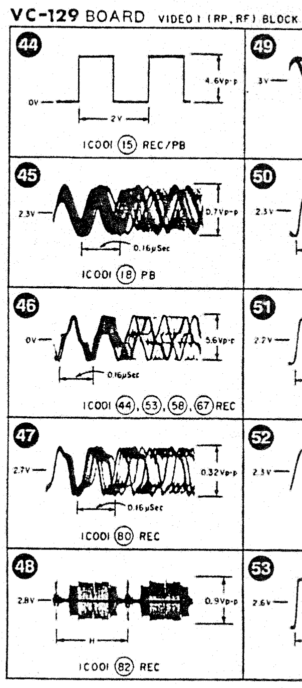

9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
IC756 FOCUS CONT
IC753 BUFFER
MR SENSOR AMP
Focus control amplifier
IC757 FOCUS DRIVER
IC754 IRIS DRIVER
IC755 MR SENSOR AMP
HALL GAIN CONTROL
HALL BIAS CONTROL
HALL AMP
Q752 BUFFER
IC752 CXD2104BM-T4
IC752 ZOOM MOTOR PRE DRIVER
IC758 ZOOM MOTOR DRIVE
Stepping motor driver
STEP MOTOR DRIVE
VG voltage
CN751 26P
1 MR SENS SO
2 MR SENS A
3 MR SENS VCC
4 MR SENS B
5 MR SENS GND
6 MR SENS C
7 GND
8 ZOOM 2B
9 ZOOM 2A
10 ZOOM 1B
11 ZOOM 1A
12 IRIS HALL (-)
13 IRIS HALL (+)
14 IRIS BIAS (-)
15 IRIS BIAS (+)
16 IRIS CONT (+)
17 IRIS DRIVE (+)
18 IRIS CONT (-)
19 IRIS DRIVE (-)
20 FOCUS SCOIL 2B
21 FOCUS SCOIL 2A
22 FOCUS DRIVE 1B
23 FOCUS DRIVE 1A
24 ZOOM SENS GND
25 ZOOM SENS OUT
26 ZOOM SENS VCC
ON for approx. 1sec. :"H" just after power supply ON
"L" pulse input just after power supply ON ("L" of the WIDE terminal)
ZOOM LENS UNIT
MR SENSOR
M906 ZOOM MOTOR
M904 IRIS MOTOR
M905 FOCUS MOTOR
ZOOM SENSOR
ZOOM SENSOR
M906 ZOOM MOTOR
M904 IRIS MOTOR
MR SENSOR
M905 FOCUS MOTOR

LD-63 BOARD
(CAMERA 2 BLOCK)




VC-129 BOARD CAMERA I BLOCK (1)


VC-129 BOARD CAMERA I BLOCK (2)

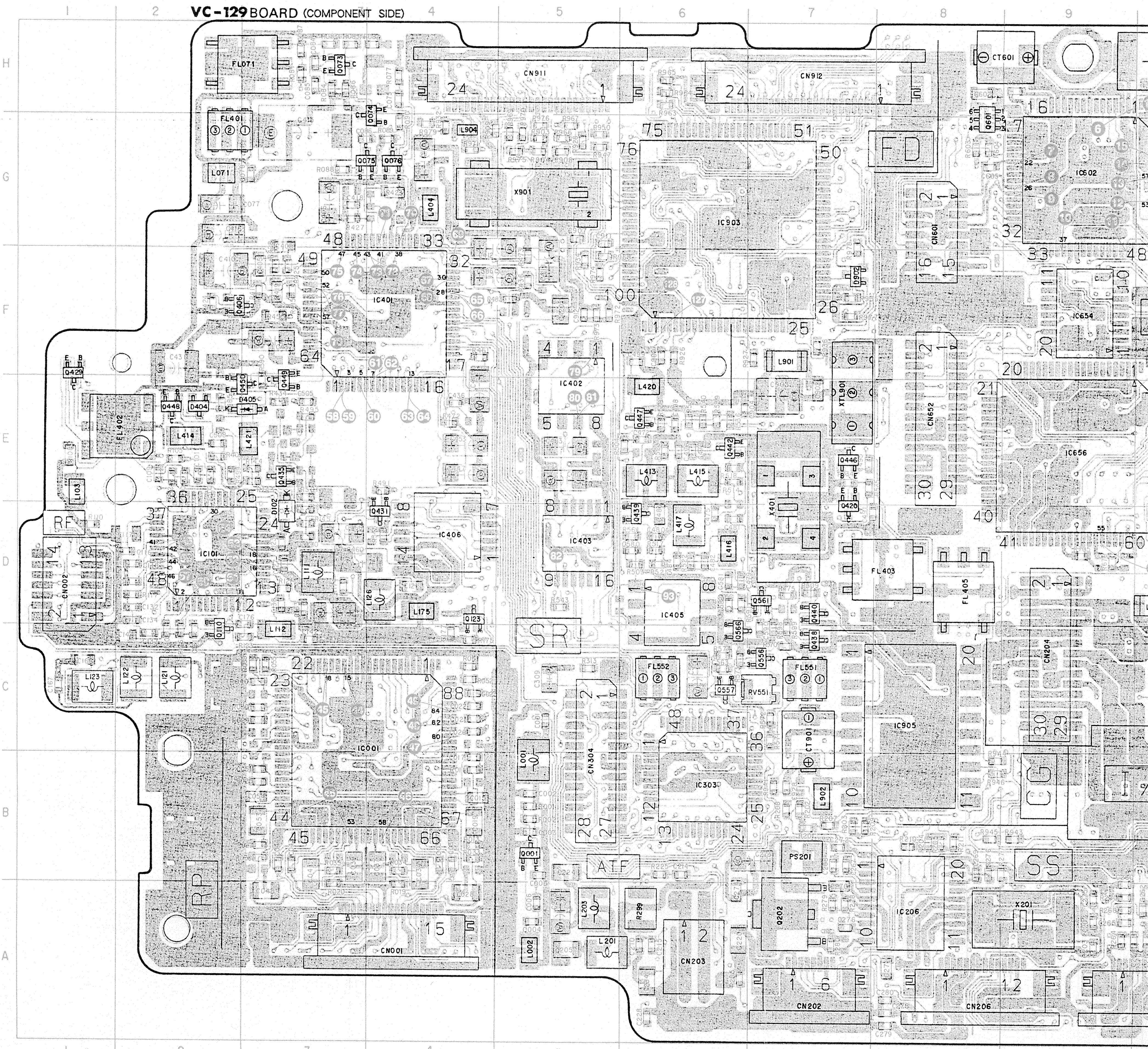

VC-129 BOARD VIDEO I (RP, RF) BLOCK

VC-129 (CAMERA, VIDEO, SERVO/SYSTEM CONTROL), DB-10 (5.3V REG) PRINTED WIRING BOARDS

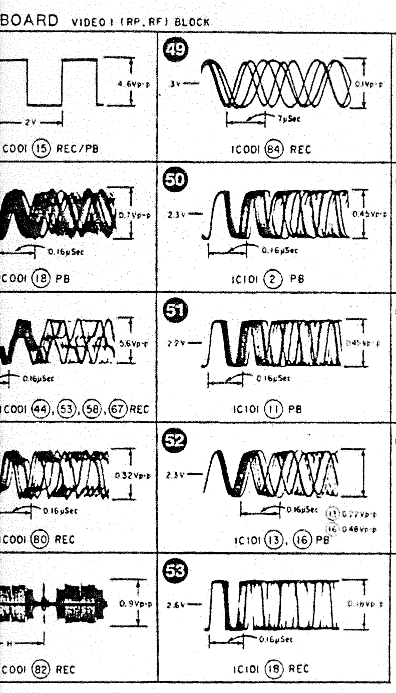
A SIDE

— Ref. No. VC-129 BOARD: 2000 series, DB-10 BOARD: 4000 series —

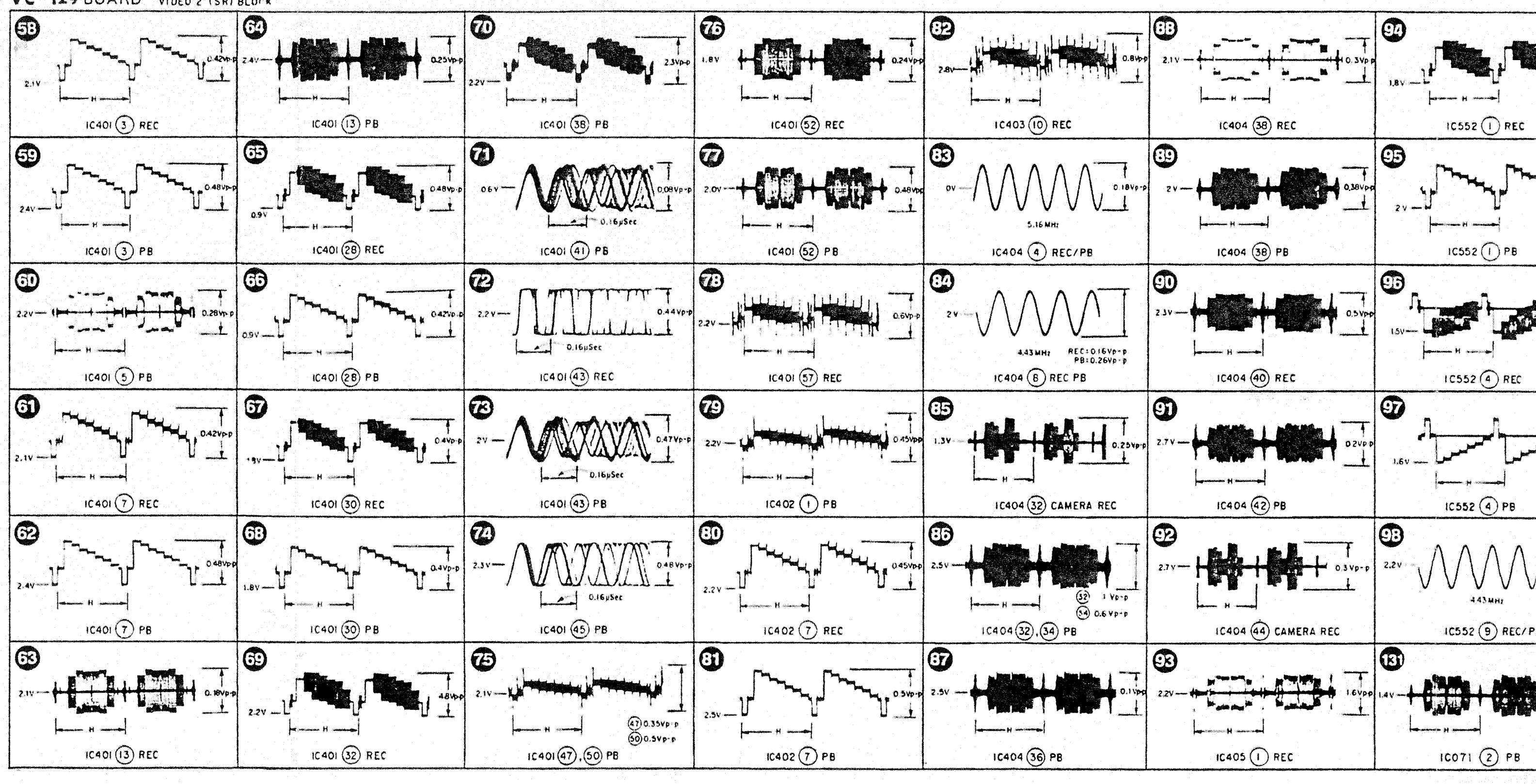
VC-129 BOARD (COMPONENT SIDE)


1
2
3
4
5
6
7
8
9
H
G
F
E
D
C
B
A
CN911
CN912
FD
X901
IC903
IC401
IC402
IC602
CN601
IC654
CN652
IC656
XTL901
L901
L420
FL071
FL401
L071
Q073
Q074
Q075
Q076
L904
L404
CT601
Q601
FL902
L414
L421
Q429
Q448
Q404
Q405
Q450
Q449
IC101
CN002
RF
L103
Q431
IC406
L111
L126
L175
LN2
Q123
IC403
L413
L415
L417
L416
Q439
X401
Q446
Q420
FL403
FL405
IC405
Q561
SR
FL552
FL551
Q557
RV551
CT901
IC001
L123
L122
L121
CN304
L001
IC303
L902
IC905
CG
CN204
Q001
ATF
L203
R299
CN203
L201
L002
PS201
Q202
IC206
SS
X201
CN001
CN202
CN206
RP

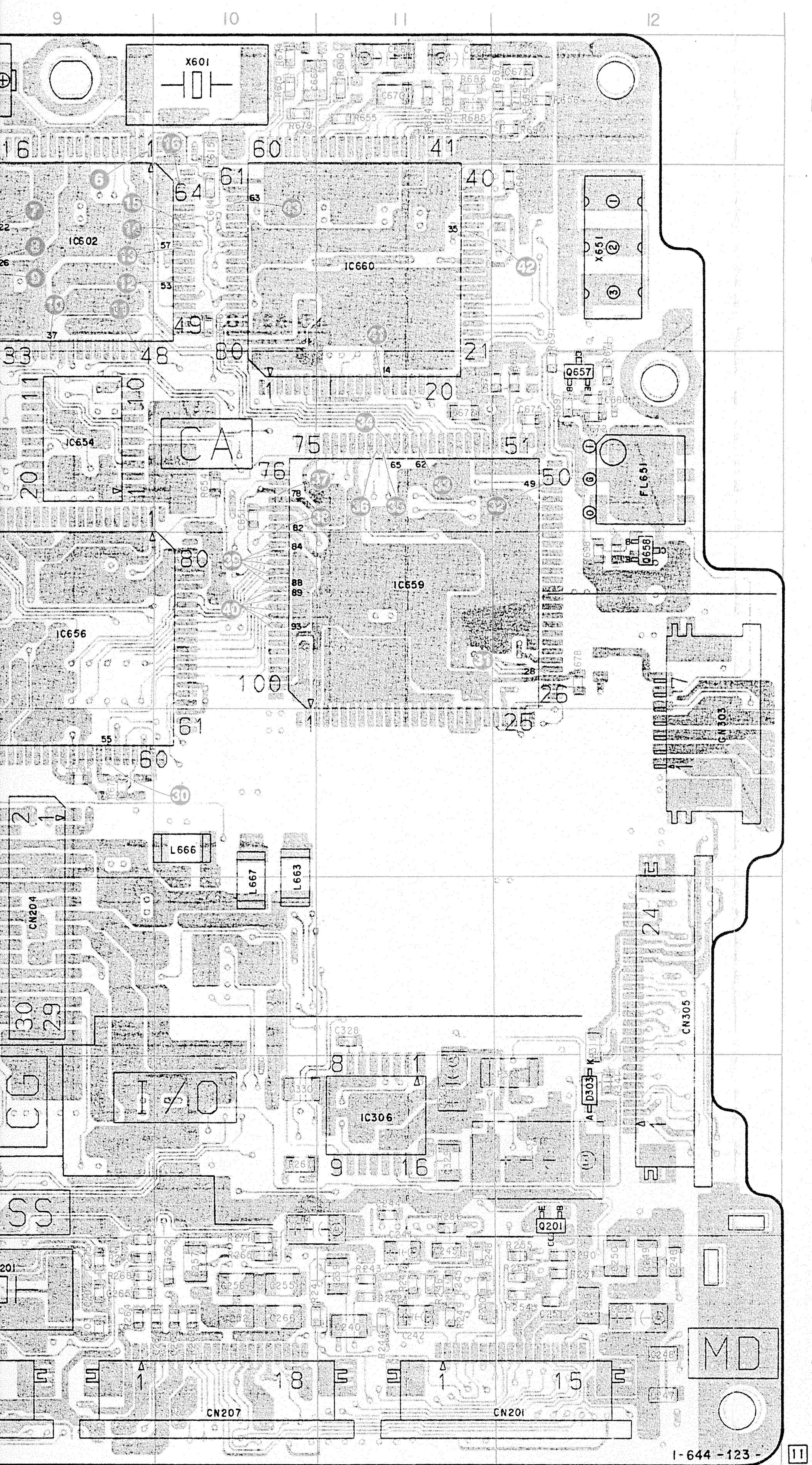
BOARD VIDEO 1 (RP, RF) BLOCK



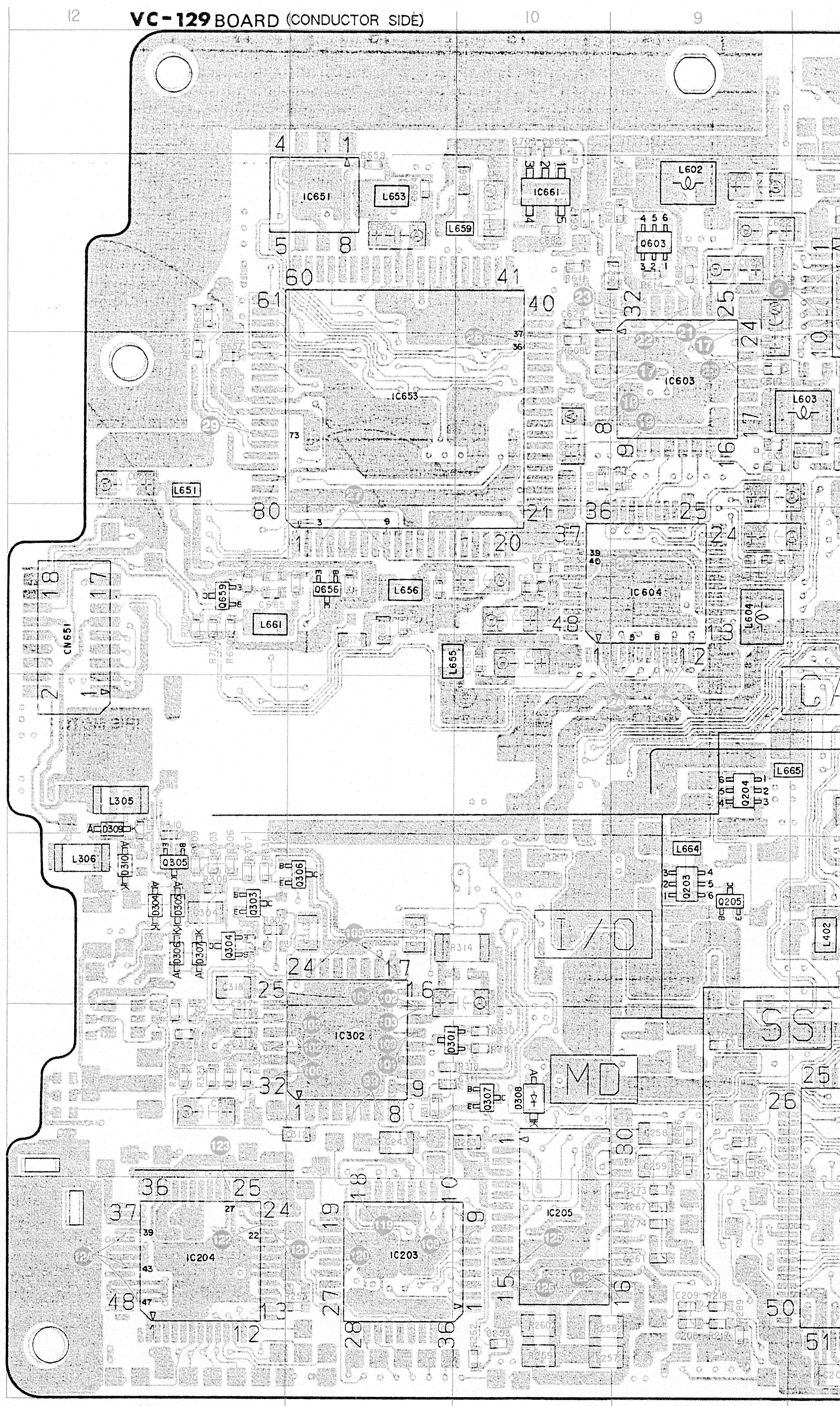
VC-129 BOARD VIDEO 2 (SR) BLOCK

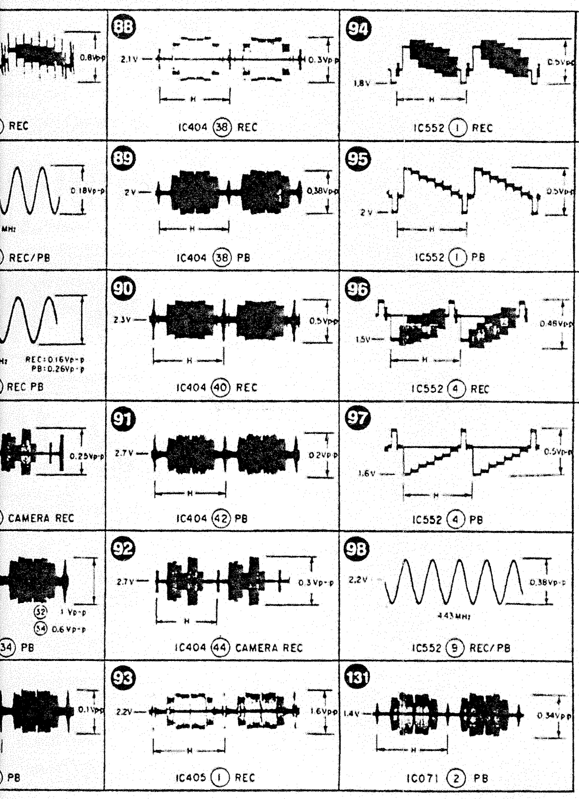


B SIDE

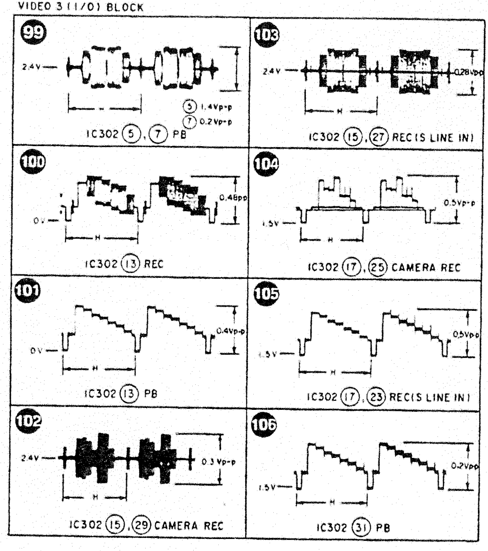

9
10
11
12
H
G
F
E
D
C
B
A
X601
X651
FL651
IC602
IC660
IC654
IC659
IC656
IC306
Q657
Q658
Q201
D303
CN303
CN305
CN204
CN207
CN201
L666
L667
L663
CA
I/O
CG
SS
MD
1-644-123-11

VC-129 BOARD (CONDUCTOR SIDE)

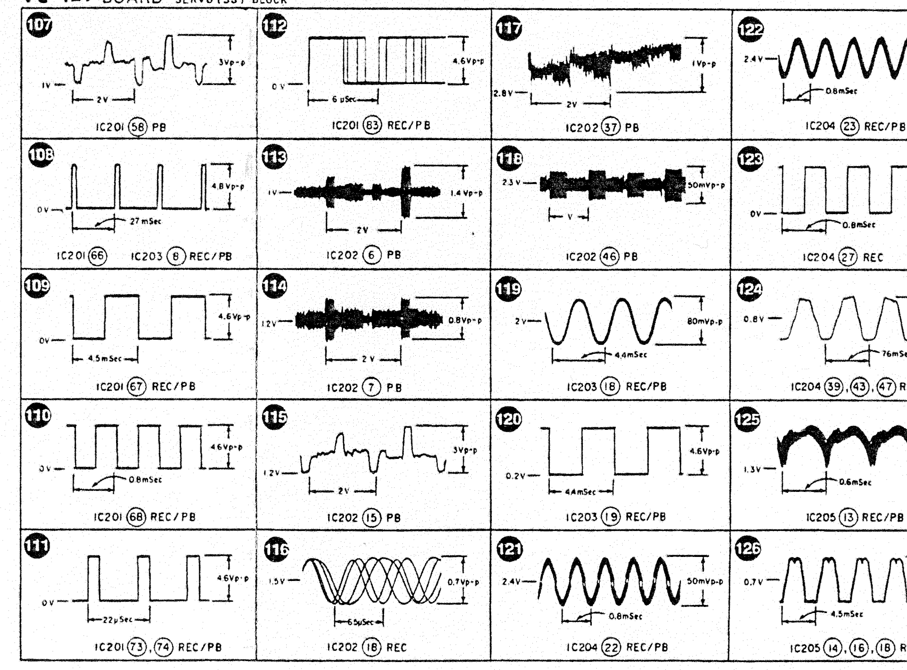

12
11
10
9
IC651
IC661
IC653
IC603
IC604
IC302
IC204
IC203
IC205
L653
L659
L602
L603
L651
L656
L661
L655
L604
L665
L664
L305
L306
L402
Q603
Q656
Q659
Q305
Q306
Q303
Q304
Q301
Q307
Q204
Q203
Q205
D305
D310
D304
D306
D307
D308
CN651
CA
I/O
SS
MD



VC-129 BOARD
VIDEO 3 (I/O) BLOCK



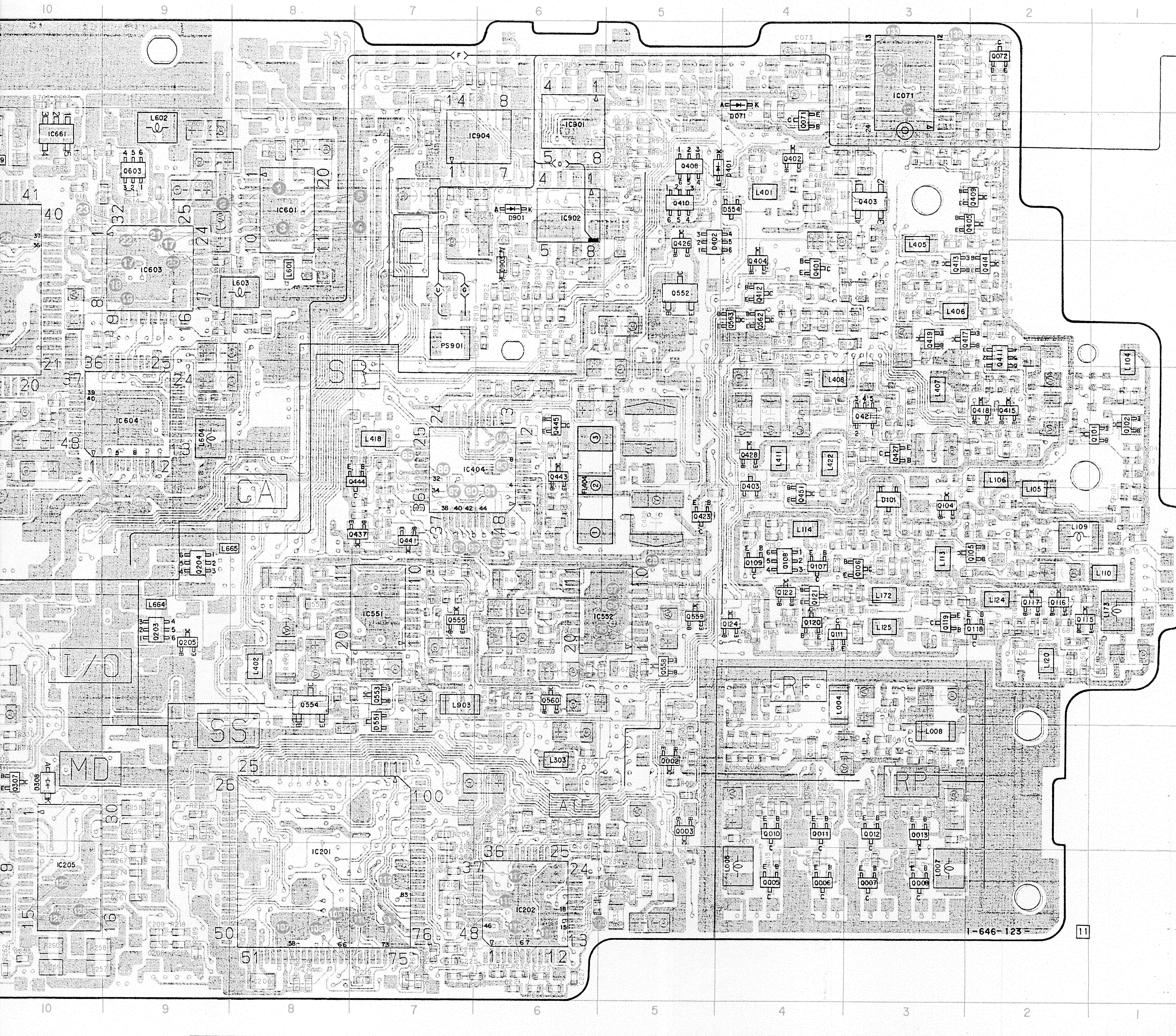
VC-129 BOARD SERVO (SS) BLOCK

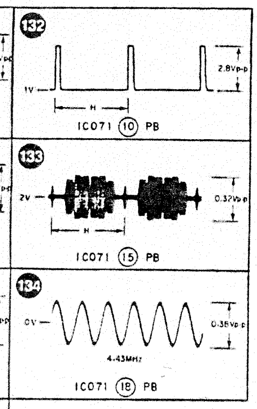


- **For printed wiring boards**
- VC-129 *board* is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

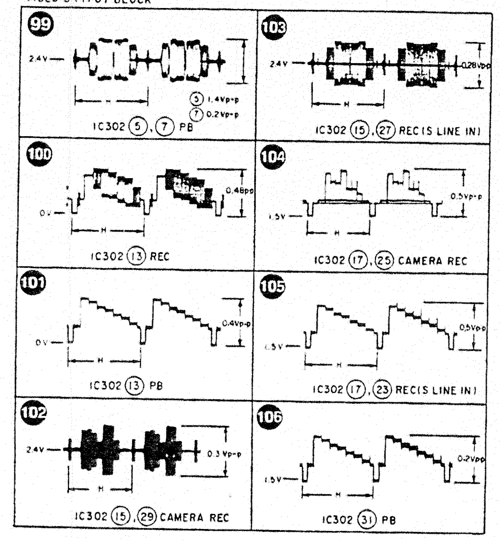
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

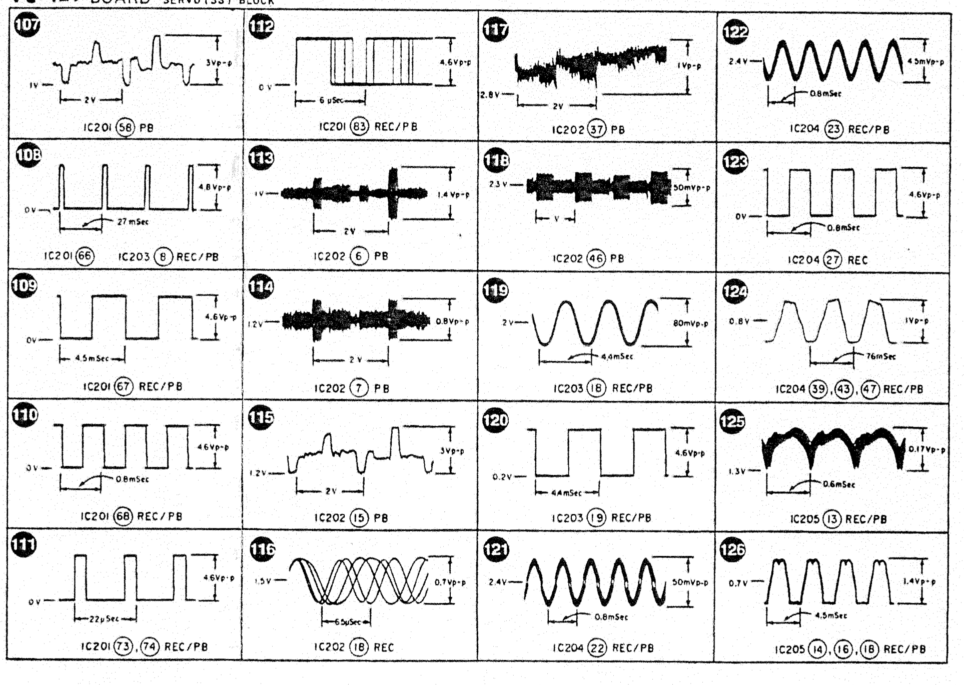

10
9
8
7
6
5
4
3
2
1
IC661
IC601
IC603
IC604
IC904
IC901
IC902
IC071
IC404
IC551
IC552
IC201
IC202
IC205
PS901
SR
CA
I/O
SS
MD
ATF
RF
RP
1-646-123-
11



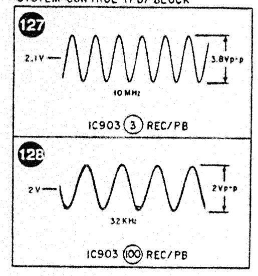
VC-129 BOARD
VIDEO 3 (I/O) BLOCK



VC-129 BOARD SERVO (SS) BLOCK



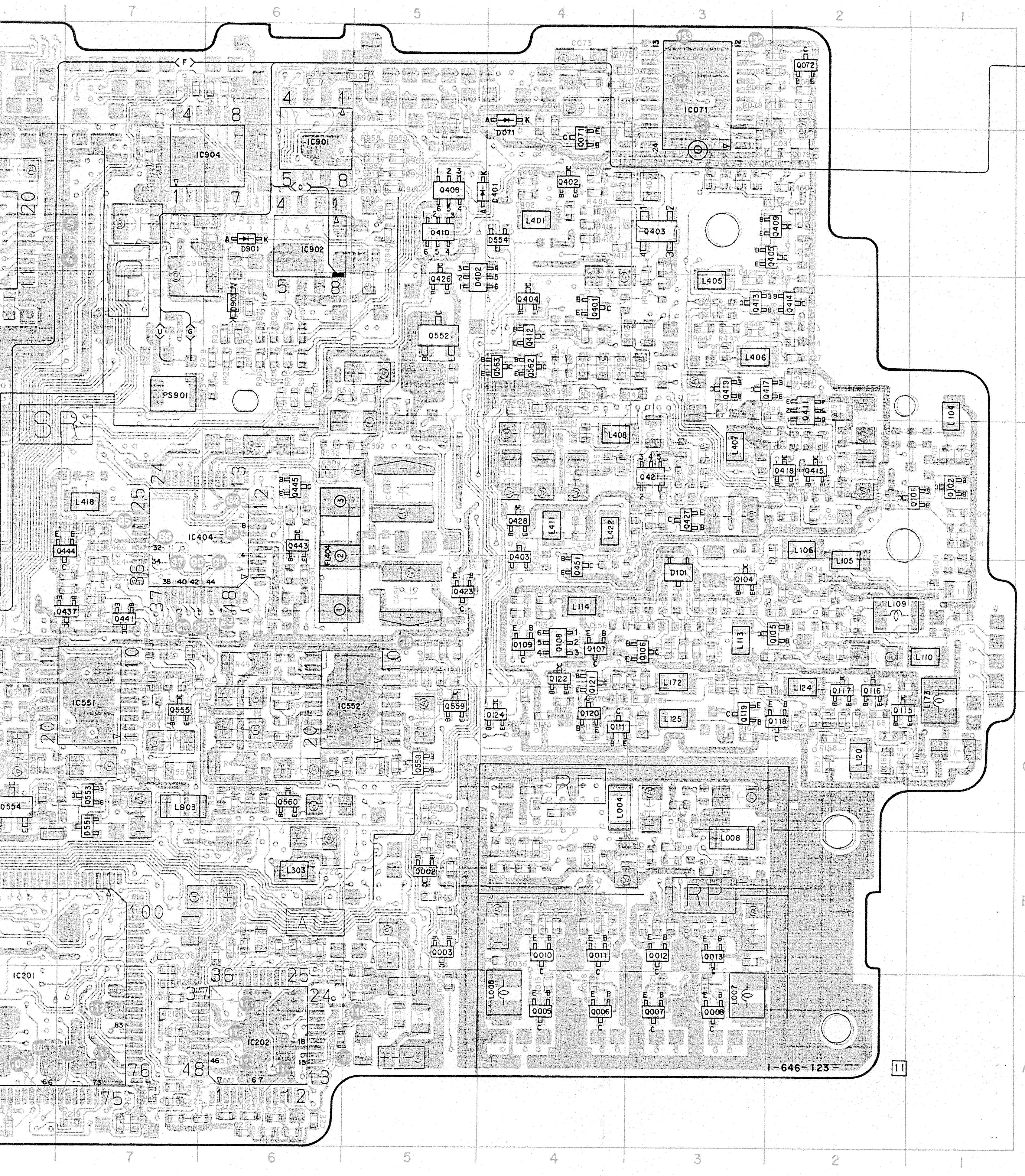
VC-129 BOARD
SYSTEM CONTROL (FD) BLOCK



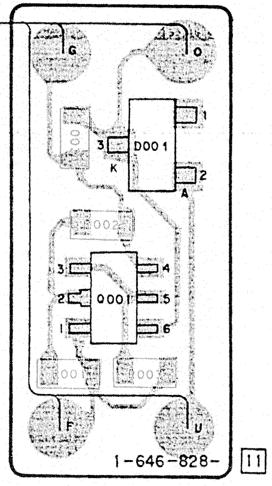
- **For printed wiring boards**
- VC-129 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.


7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
IC904
IC901
IC902
IC071
IC404
IC551
IC552
IC201
IC202
D901
D071
D101
PS901
L401
L405
L406
L408
L418
L114
L172
L125
L124
L110
L109
L106
L105
L104
L903
L303
L004
L008
L005
L007
Q072
Q071
Q408
Q410
Q402
Q403
Q404
Q552
Q421
Q423
Q428
Q403
Q109
Q107
Q122
Q120
Q111
Q117
Q116
Q118
Q115
Q104
Q101
Q102
Q444
Q437
Q441
Q555
Q559
Q560
Q554
Q010
Q011
Q012
Q013
Q005
Q006
Q007
Q008
Q002
Q003
1-646-123-
11

DB-10 BOARD

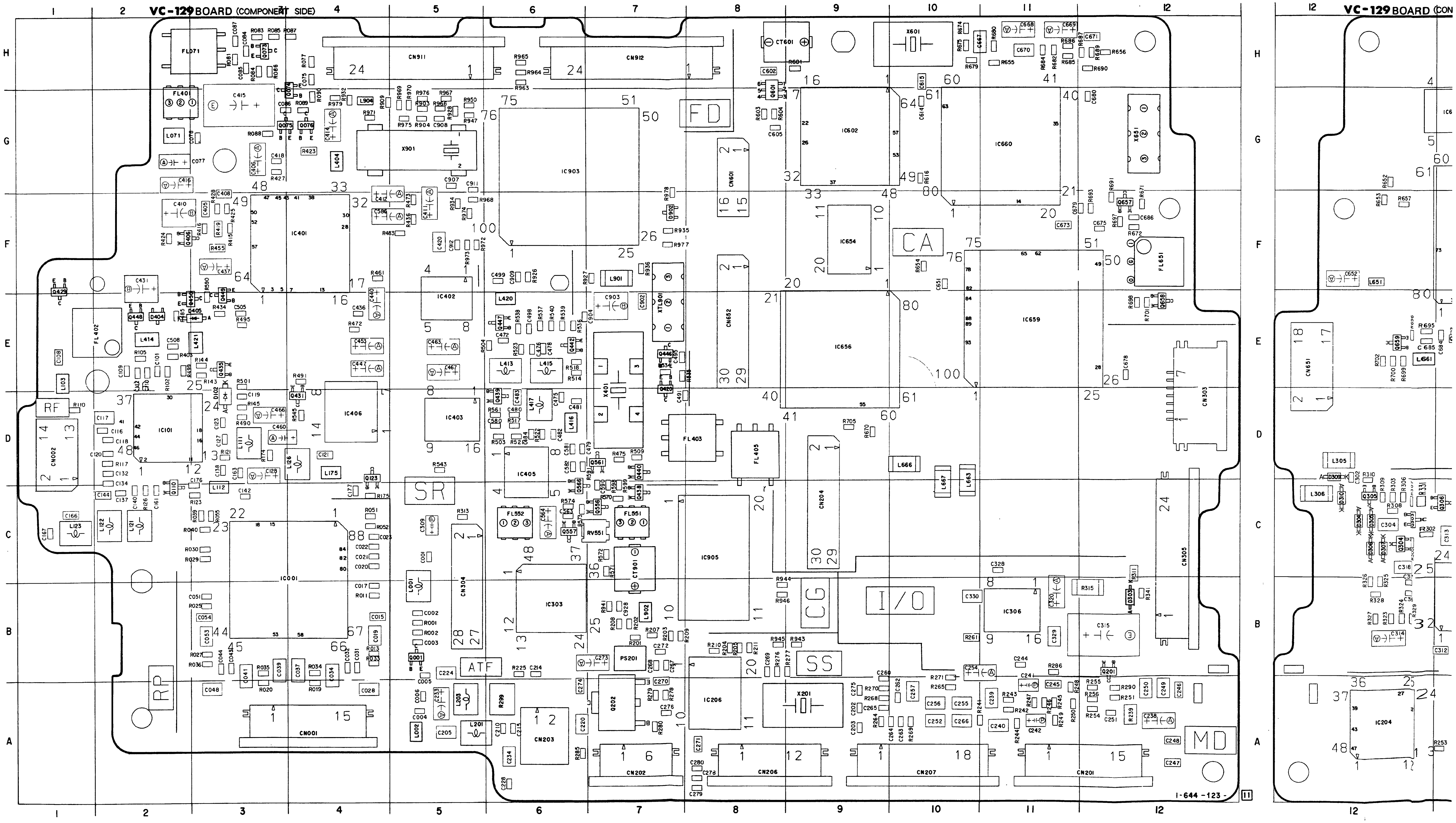

D001
Q001
1-646-828-
11

VC-129 (CAMERA, VIDEO, SERVO/SYSTEM CONTROL), DB-10 (5.3V REG) PRINTED WIRING BOARDS

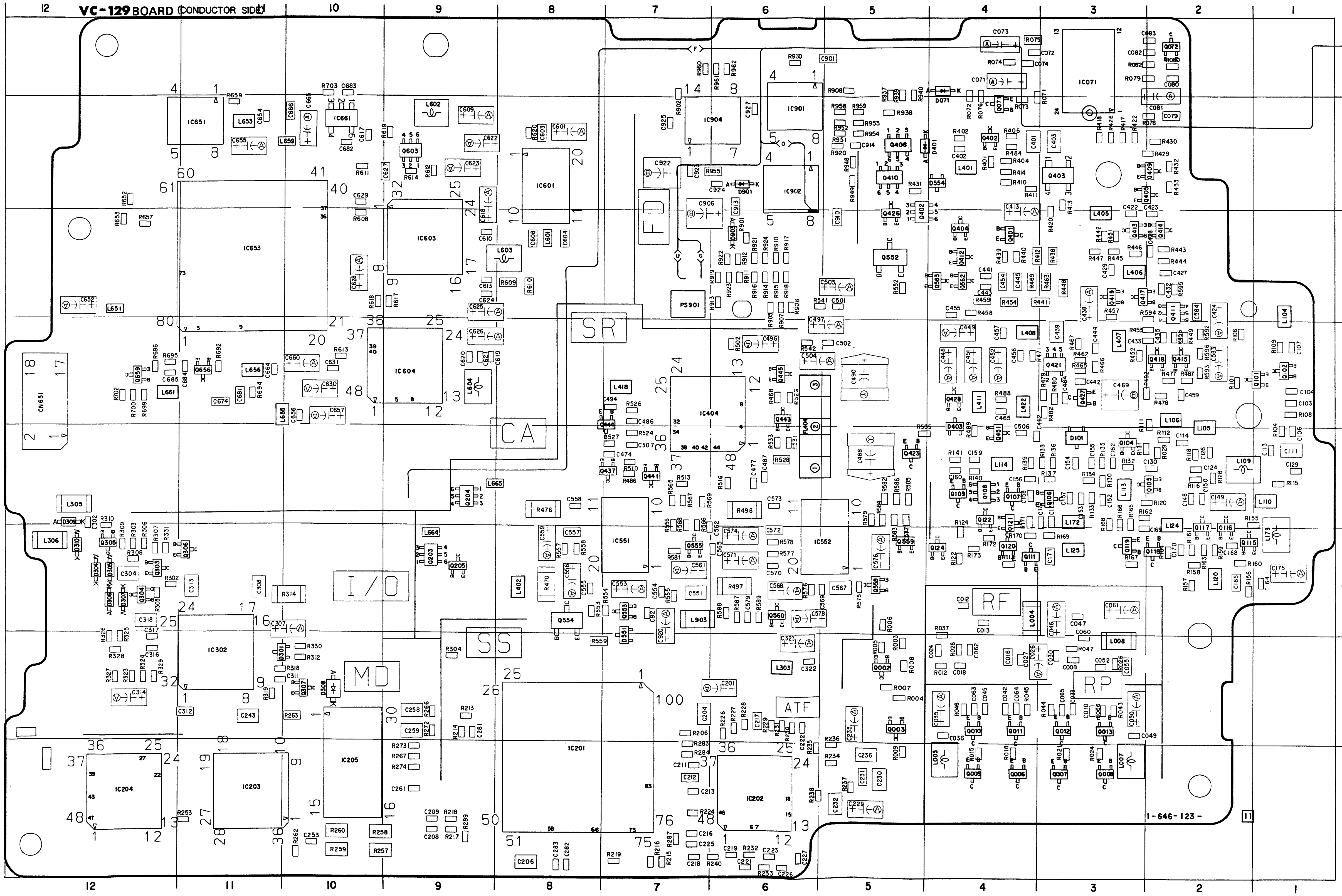
— Ref. No. VC-129 BOARD: 2000 series, DB-10 BOARD: 4000 series —

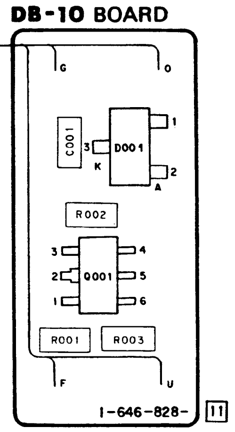
A SIDE

B SIDE


VC-129 BOARD (COMPONENT SIDE)
VC-129 BOARD (CON
1
2
3
4
5
6
7
8
9
10
11
12
H
G
F
E
D
C
B
A
FD
CA
SR
CG
I/O
SS
ATF
MD
RF
RP
IC903
IC401
IC402
IC403
IC405
IC406
IC101
IC001
IC303
IC905
IC206
IC602
IC660
IC654
IC656
IC659
IC306
IC204
CN911
CN912
CN601
CN652
CN204
CN304
CN305
CN303
CN002
CN001
CN203
CN202
CN206
CN207
CN201
CN651
X901
X601
X401
X201
FL071
FL401
FL402
FL403
FL405
FL552
FL551
FL651
CT601
CT901
PS201
RV551
XTL901
1-644-123-

B SIDE


VC-129 BOARD (CONDUCTOR SIDE)
12
11
10
9
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
IC651
IC661
IC653
IC601
IC603
IC604
IC904
IC901
IC902
IC071
IC404
IC551
IC552
IC302
IC204
IC203
IC205
IC201
IC202
CN651
PS901
FD
SR
CA
I/O
SS
MD
ATF
RF
RP
1-646-123-
11


DB-10 BOARD
D001
Q001
C001
R002
R001
R003
1-646-828-
11

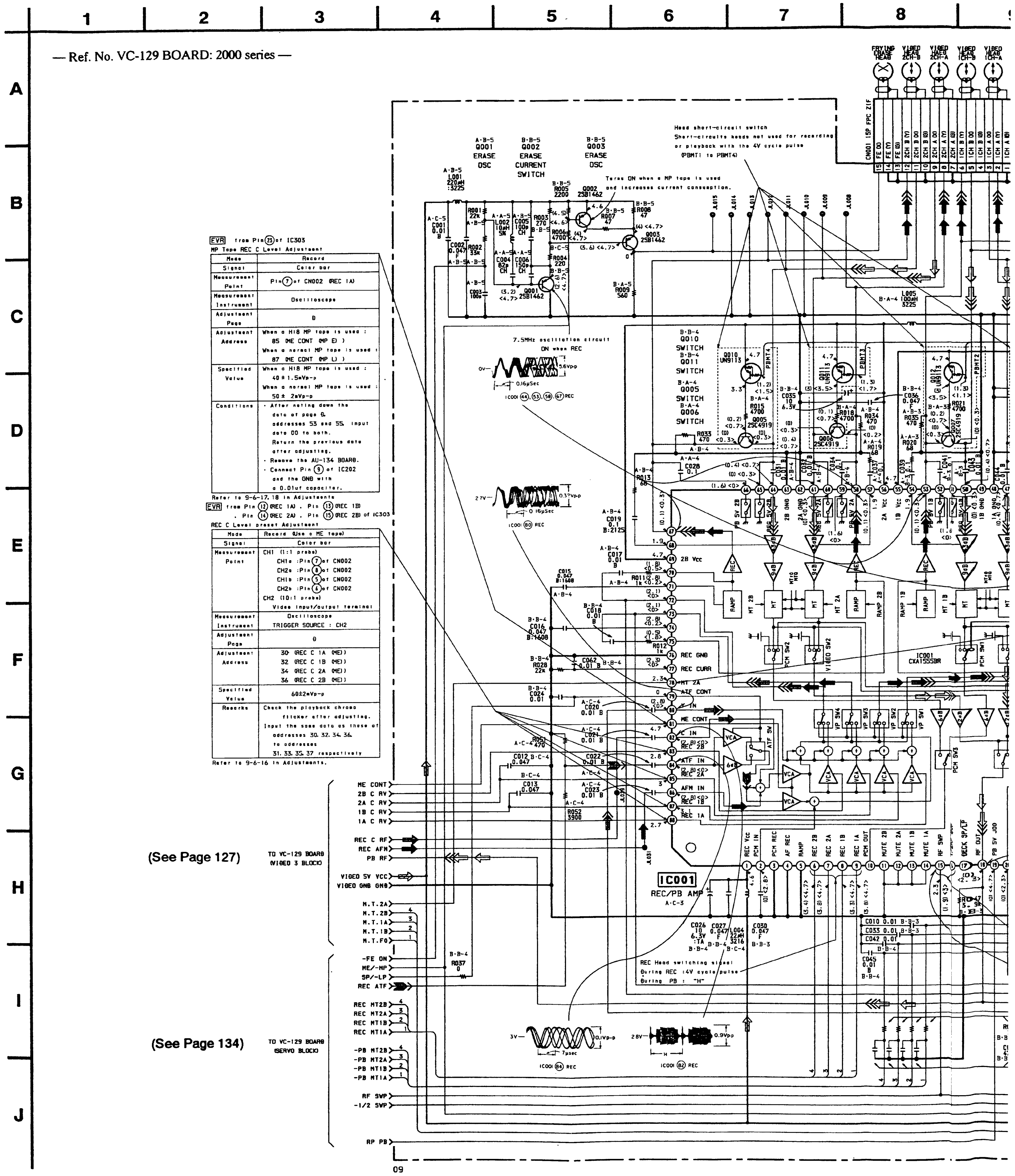
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VC-129 (VIDEO 1 (RP, RF)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. VC-129 BOARD: 2000 series —


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
FLYING ERASE HEAD
VIDEO HEAD 2CH-B
VIDEO HEAD 2CH-A
VIDEO HEAD 1CH-B
VIDEO HEAD 1CH-A
CN001 15P FPC ZIF
A-B-5 Q001 ERASE OSC
B-B-5 Q002 ERASE CURRENT SWITCH
B-B-5 Q003 ERASE OSC
Head short-circuit switch
Short-circuits heads not used for recording or playback with the 4V cycle pulse (PBMT1 to PBMT4)
Turns ON when a MP tape is used and increases current consumption.
7.5MHz oscillation circuit ON when REC
B-B-4 Q010 SWITCH
B-B-4 Q011 SWITCH
B-A-4 Q005 SWITCH
B-A-4 Q006 SWITCH
IC001 CXA1555BR
IC001 REC/PB AMP A-C-5
ME CONT
2B C RV
2A C RV
1B C RV
1A C RV
REC C RF
REC AFM
PB RF
VIDEO 5V VCC
VIDEO GND GND
M.T.2A
M.T.2B
M.T.1A
M.T.1B
M.T.FO
-FE ON
ME/-MP
SP/-LP
REC ATF
REC MT2B
REC MT2A
REC MT1B
REC MT1A
-PB MT2B
-PB MT2A
-PB MT1B
-PB MT1A
RF SWP
-1/2 SWP
RP PB
(See Page 127)
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
REC Head switching signal During REC : 4V cycle pulse During PB : "H"
09

EVR from Pin ㉓ of IC303

MP Tape REC C Level Adjustment

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	When a HI8 MP tape is used : 85 (ME CONT (MP E)) When a normal MP tape is used : 87 (ME CONT (MP L))
Specified Value	When a HI8 MP tape is used : 40 ± 1.5mVp-p When a normal MP tape is used : 50 ± 2mVp-p
Conditions	· After noting down the data of page D, addresses 53 and 55, input data 00 to both. Return the previous data after adjusting. · Remove the AU-134 BOARD. · Connect Pin ⑨ of IC202 and the GND with a 0.01uf capacitor.

Refer to 9-6-17, 18 in Adjustments

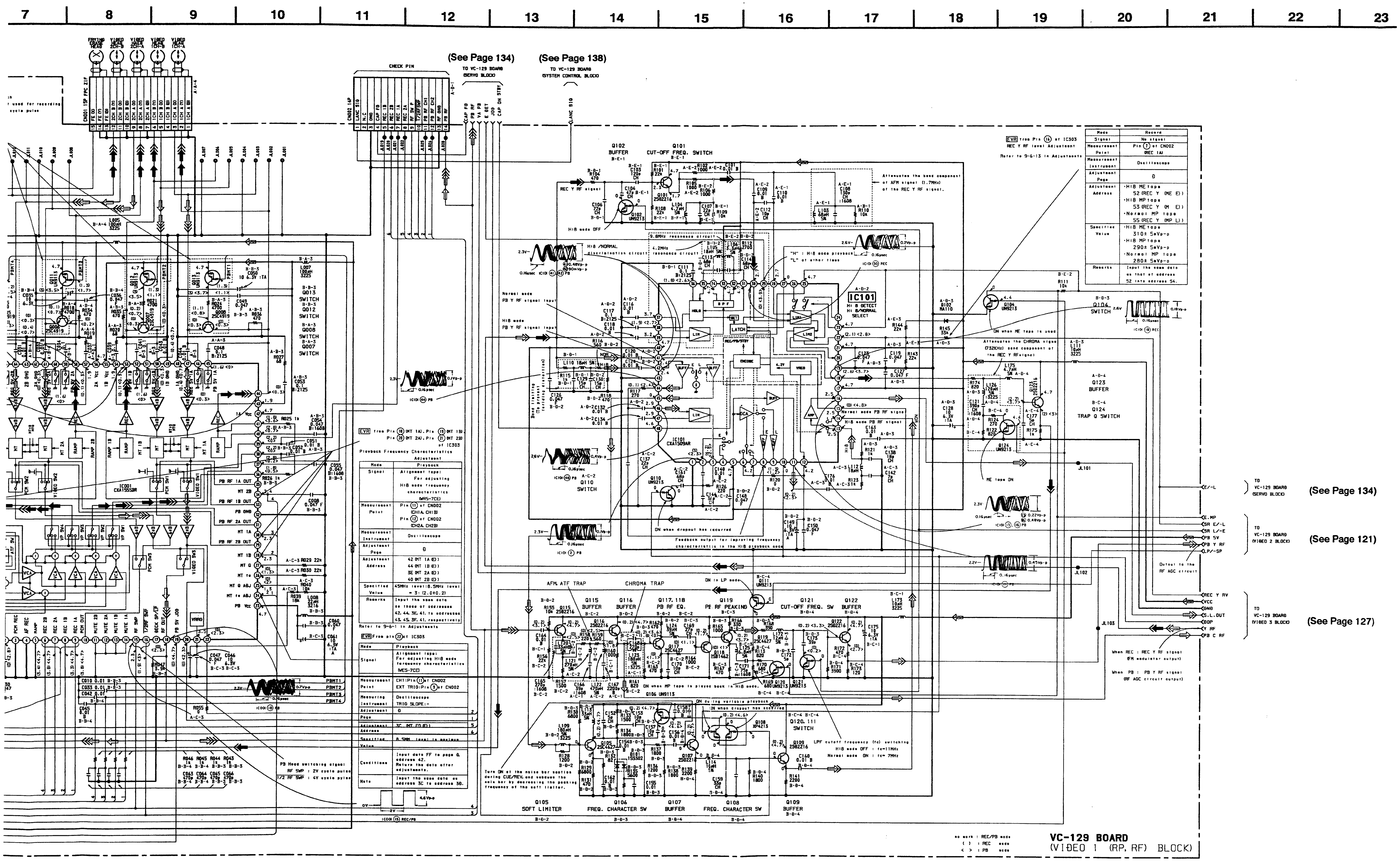
EVR from Pin ⑫ (REC 1A) , Pin ⑬ (REC 1B) , Pin ⑭ (REC 2A) , Pin ⑮ (REC 2B) of IC303

REC C Level preset Adjustment

Mode	Record (Use a ME tape)
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a :Pin ⑦ of CN002 CH2a :Pin ⑧ of CN002 CH1b :Pin ⑤ of CN002 CH2b :Pin ⑥ of CN002 CH2 (10:1 probe) Video input/output terminal
Measurement Instrument	Oscilloscope TRIGGER SOURCE : CH2
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)) 32 (REC C 1B (ME)) 34 (REC C 2A (ME)) 36 (REC C 2B (ME))
Specified Value	60±2mVp-p
Remarks	Check the playback chroma flicker after adjusting. Input the same data as those of addresses 30, 32, 34, 36, to addresses 31, 33, 35, 37 respectively

Refer to 9-6-16 in Adjustments.

the VC-129 board.


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
CHECK PIN
CN001 15P FPC ZIF
CN002 14P
Q102 BUFFER
Q101 CUT-OFF FREQ. SWITCH
IC101 CXA1509AR
IC001 CXA1555BR
Q104 SWITCH
Q123 BUFFER
Q124 TRAP Q SWITCH
Q110 SWITCH
AFM, ATF TRAP
CHROMA TRAP
Q115 BUFFER
Q116 BUFFER
Q117, 118 PB RF EQ.
Q119 PB RF PEAKING
Q121 CUT-OFF FREQ. SW
Q122 BUFFER
Q120, 111 SWITCH
Q105 SOFT LIMITER
Q106 FREQ. CHARACTER SW
Q107 BUFFER
Q108 FREQ. CHARACTER SW
Q109 BUFFER
TO VC-129 BOARD (SERVO BLOCK) (See Page 134)
TO VC-129 BOARD (VIDEO 2 BLOCK) (See Page 121)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 127)
ON when ME tape is used
ON when dropout has occurred
Attenuates the CHROMA signal (732KHz) band component of the REC Y RF signal
Attenuates the band component of AFM signal (1.7MHz) of the REC Y RF signal.
Turn ON of the noise bar section during CUE/REV, and subdues the noise bar by decreasing the peaking frequency of the soft limiter.
LPF cutoff frequency (fc) switching: Hi8 mode OFF : fc=11MHz, Normal mode ON : fc=7MHz
Feedback output for improving frequency characteristics in the Hi8 playback mode
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
VC-129 BOARD
(VIDEO 1 (RP, RF) BLOCK)

EVR from Pin ⑯ of IC303
REC Y RF level Adjustment
Refer to 9-6-13 in Adjustments

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measurement Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	·Hi8 ME tape 52 (REC Y (ME E)) ·Hi8 MP tape 53 (REC Y (M E)) ·Normal MP tape 55 (REC Y (MP L))
Specified Value	·Hi8 ME tape 310± 5mVp-p ·Hi8 MP tape 290± 5mVp-p ·Normal MP tape 280± 5mVp-p
Remarks	Input the same data as that of address 52 into address 54.

EVR from Pin ⑱ (MT 1A), Pin ⑲ (MT 1B), Pin ⑳ (MT 2A), Pin ㉑ (MT 2B) of IC303
Playback Frequency Characteristics Adjustment

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	Pin ⑪ of CN002 (CH1A, CH1B) Pin ⑫ of CN002 (CH2A, CH2B)
Measurement Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	42 (MT 1A (E)) 44 (MT 1B (E)) 3E (MT 2A (E)) 40 (MT 2B (E))
Specified Value	45MHz level:8.5MHz level = 3: (2.0±0.2)
Remarks	Input the same data as those of addresses 42, 44, 3E, 41, to addresses 43, 45, 3F, 41, respectively

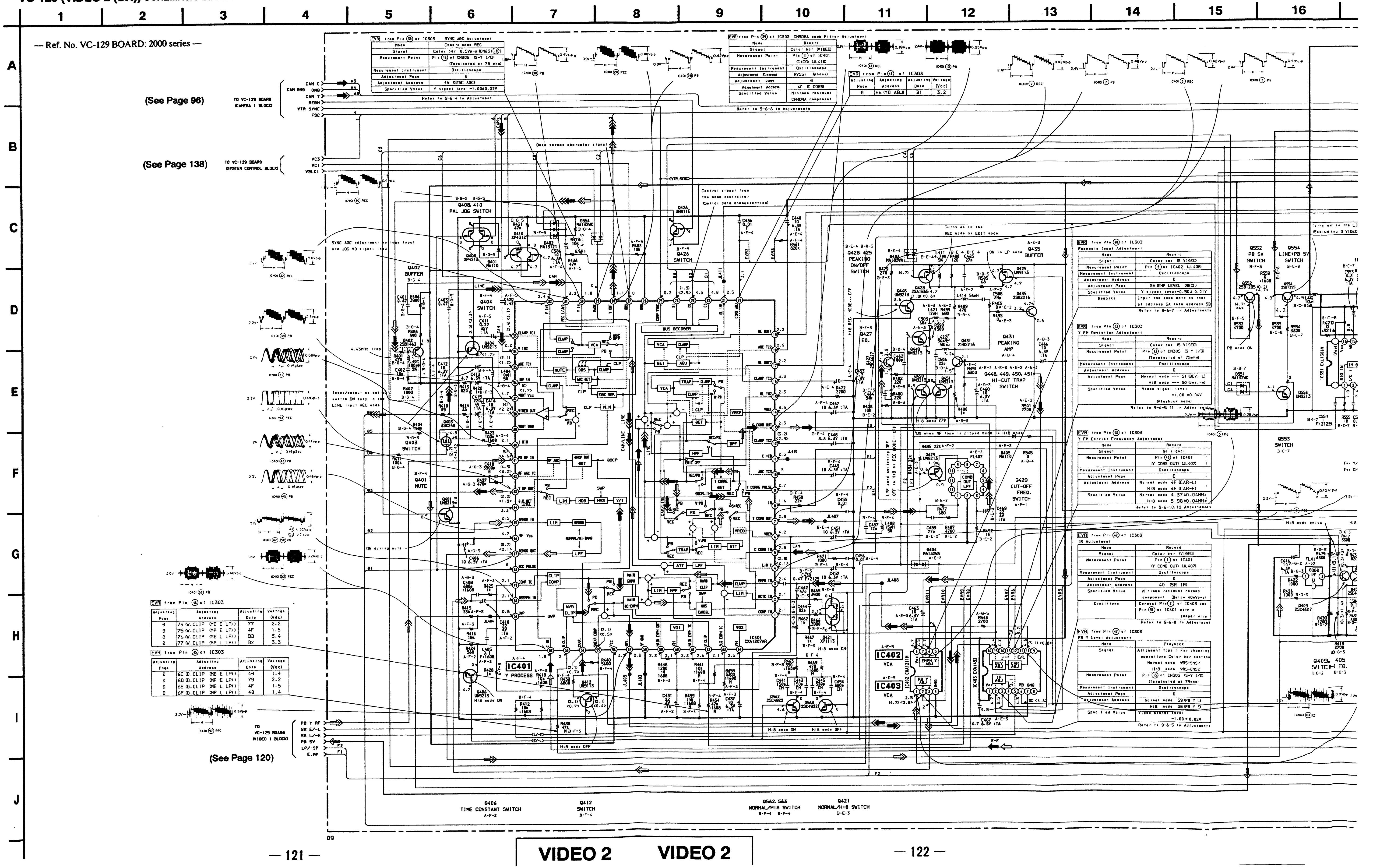
Refer to 9-6-1 in Adjustments

EVR From pin ㉒ of IC303

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode ferquency characteristics (WE5-7CE)
Measurement Point	CH1:Pin ⑪ of CN002 EXT TRIG:Pin ⑨ of CN002
Measuring Instrument	Oscilloscope TRIG SLOPE:-
Adjustment Page	0
Adjustment Address	3C (MT F0 (E))
Specified Value	8.5MH level is maximum
Conditions	Input data FF to page 0, address 42. Return the data after adjustments.
Note	Input the same data as address 3C to address 3D.

VC-129 (VIDEO 2 (SR)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.


— Ref. No. VC-129 BOARD: 2000 series —
(See Page 96)
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 120)
TO VC-129 BOARD (VIDEO 1 BLOCK)
Q408, 410 PAL JOG SWITCH
Q402 BUFFER
Q404 SWITCH
Q403 SWITCH
Q401 MUTE
Q426 SWITCH
Q428, 425 PEAKING ON/OFF SWITCH
Q427 EQ.
Q435 BUFFER
Q431 PEAKING AMP
Q448, 449, 450, 451 HI-CUT TRAP SWITCH
Q429 CUT-OFF FREQ. SWITCH
Q552 PB 5V SWITCH
Q554 LINE+PB 5V SWITCH
Q553 SWITCH
IC401 CXA1207AR
IC401 Y PROCESS
IC402 VCA
IC403 VCA
Q406 TIME CONSTANT SWITCH
Q412 SWITCH
Q562, 563 NORMAL/HI8 SWITCH
Q421 NORMAL/HI8 SWITCH
Q409, 405 SWITCH EQ.

[EVR] from Pin ㊳ of IC303 SYNC AGC Adjustment

Mode	Camera mode REC
Signal	Color bar 0.5Vp-p (CN651 ⑱)
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75 ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	Y signal level = 1.00±0.02V

Refer to 9-6-4 in Adjustment

[EVR] from Pin ㊴ of IC303 CHROMA comb Filter Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Mesurement Instrument	Oscilloscope
Adjustment Element	RV551 (phase)
Adjustment page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual CHROMA component

Refer to 9-6-6 in Adjustments

[EVR] from Pin ㊵ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	66 (YD ADJ)	B1	3.2

[EVR] from Pin ㊽ of IC303
Emphasis Input Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑤ of IC402 (JL408)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	5A (EMP LEVEL (REC))
Specified Value	Y signal level=0.50± 0.01V
Remarks	Input the same data as that of address 5A into address 5B

Refer to 9-6-7 in Adjustments

[EVR] from Pin ⑬ of IC303
Y FM Deviation Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	Normal mode --- 51 (DEV.-L) Hi8 mode --- 50 (dev.-e)
Specified Value	Video signal level =1.00 ±0.04V (Playback mode)

Refer to 9-6-9, 11 in Adjustments

[EVR] from Pin ㊸ of IC303
Y FM Carrier Frequency Adjustment

Mode	Record
Signal	No signal
Mesurement Point	Pin ㊸ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 4F (CAR-L) Hi8 mode 4E (CAR-E)
Specified Value	Normal mode 4.37±0.04MHz Hi8 mode 5.98±0.04MHz

Refer to 9-6-10, 12 Adjustments

[EVR] from Pin ㊷ of IC303
IR Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (Below 40mVp-p)
Conditions	Connect Pin ② of IC403 and Pin (51) of IC401 with a jumper wire

Refer to 9-6-8 in Adjustment

[EVR] from Pin ㊼ of IC303
PB Y Level Adjustment

Mode	Playback
Signal	Alignment tape : For checking operations Color bar section Normal mode WR5-5NSP Hi8 mode WR5-8NSE
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 59 (PB Y L) Hi8 mode 58 (PB Y E)
Specified Value	Video signal level =1.00 ± 0.02V

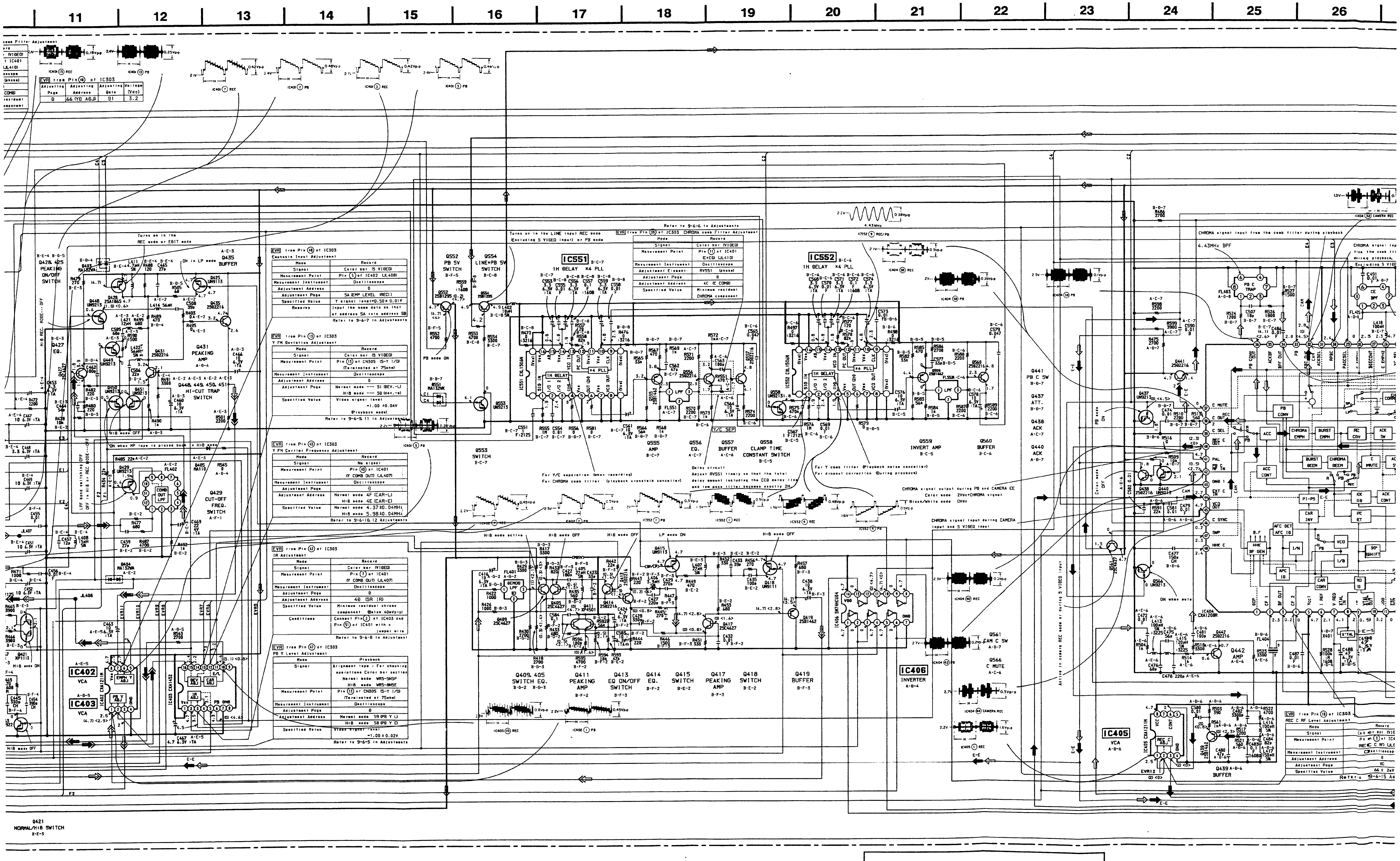
Refer to 9-6-5 in Adjustments

[EVR] from Pin ㊻ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	74 (W.CLIP (ME E LP))	77	2.2
D	75 (W.CLIP (MP E LP))	4F	1.5
D	76 (W.CLIP (ME L LP))	BB	3.4
D	77 (W.CLIP (MP L LP))	B2	3.3

[EVR] from Pin ㊺ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	6C (D.CLIP (ME E LP))	4D	1.4
D	6D (D.CLIP (MP E LP))	79	2.2
D	6E (D.CLIP (ME L LP))	4F	1.5
D	6F (D.CLIP (MP L LP))	4D	1.4


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
IC551
1H DELAY ×4 PLL
IC552
1H DELAY ×4 PLL
IC402
VCA
IC403
VCA
IC406
INVERTER
IC405
VCA
IC404
CXA1208R
Q428, 425 PEAKING ON/OFF SWITCH
Q427 EQ.
Q435 BUFFER
Q431 PEAKING AMP
Q448, 449, 450, 451 HI-CUT TRAP SWITCH
Q429 CUT-OFF FREQ. SWITCH
Q552 PB 5V SWITCH
Q554 LINE+PB 5V SWITCH
Q553 SWITCH
Q555 AMP
Q556 EQ.
Q557 BUFFER
Q558 CLAMP TIME CONSTANT SWITCH
Q559 INVERT AMP
Q560 BUFFER
Q409, 405 SWITCH EQ.
Q411 PEAKING AMP
Q413 EQ ON/OFF SWITCH
Q414 EQ.
Q415 SWITCH
Q417 PEAKING AMP
Q418 SWITCH
Q419 BUFFER
Q441 PB C SW
Q437 ATT.
Q438 ACK
Q440 ACK
Q561 CAM C SW
Q566 C MUTE
Q442 AMP
Q439 BUFFER
Q421 NORMAL/HI8 SWITCH
Turns on in the LINE input REC mode (Excluding S VIDEO input) or PB mode
ON when HP tape is played back in HI8 mode
For Y/C separation (when recording)
For CHROMA comb filter (playback crosstalk canceller)
For Y comb filter (Playback noise canceller)
For dropout correction (During playback)
CHROMA signal input from the comb filter during playback
CHROMA signal output during PB and CAMERA EE
CHROMA signal input during CAMERA input and S VIDEO input
4.43MHz BPF

EVR from Pin ㊵ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	66 (YD ADJ)	B1	3.2

EVR from Pin ㊽ of IC303
Emphasis Input Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑤ of IC402 (JL408)
Mesuremont Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	5A (EMP LEVEL (REC))
Specified Value	Y signal level=0.50± 0.01V
Remarks	Input the same data as that of address 5A into address 5B

Refer to 9-6-7 in Adjustments

EVR from Pin ⑬ of IC303
Y FM Deviation Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	Normal mode --- 51 (DEV.-L) HI8 mode --- 50 (dev.-e)
Specified Value	Video signal level =1.00 ±0.04V (Playback mode)

Refer to 9-6-9, 11 in Adjustments

EVR from Pin ㊸ of IC303
Y FM Carrier Frequency Adjustment

Mode	Record
Signal	No signal
Mesurement Point	Pin ㊸ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 4F (CAR-L) HI8 mode 4E (CAR-E)
Specified Value	Normal mode 4.37±0.04MHz HI8 mode 5.98±0.04MHz

Refer to 9-6-10, 12 Adjustments

EVR from Pin ㊷ of IC303
IR Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (Below 40mVp-p)
Conditions	Connect Pin ② of IC403 and Pin ㊿ of IC401 with a jumper wire

Refer to 9-6-8 in Adjustment

EVR from Pin ㊼ of IC303
PB Y Level Adjustment

Mode	Playback
Signal	Alignment tape : For checking operations Color bar section Normal mode WR5-5NSP HI8 mode WR5-8NSE
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 59 (PB Y L) HI8 mode 58 (PB Y E)
Specified Value	Video signal level =1.00 ± 0.02V

Refer to 9-6-5 in Adjustments

Refer to 9-6-6 in Adjustments
EVR from Pin ㊴ of IC303 CHROMA comb Filter Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Mesurement Instrument	Oscilloscope
Adjustment Element	RV551 (phase)
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual CHROMA component

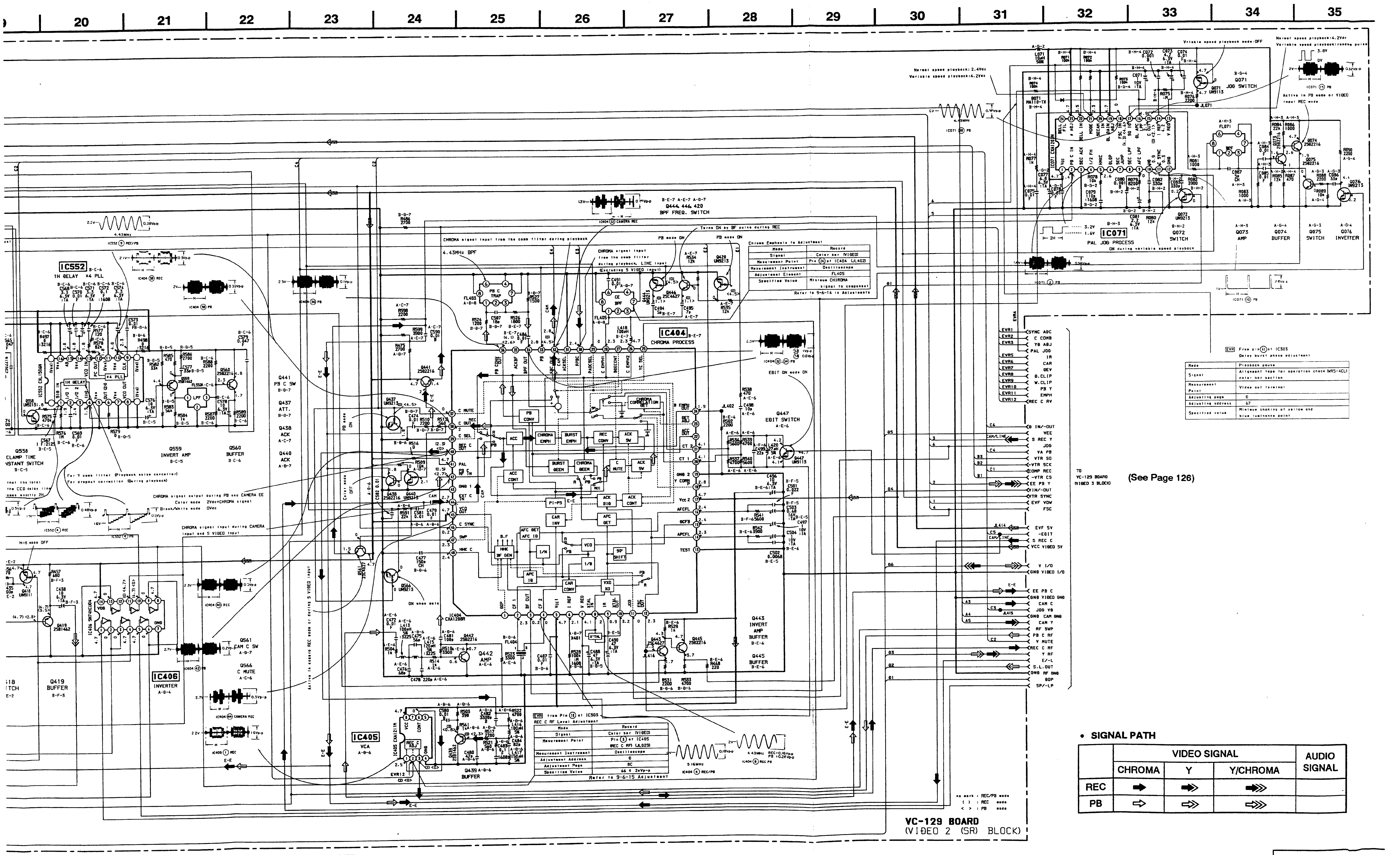
Delay circuit
Adjust RV551 finely so that the total delay amount including the CCD delay line and low pass filter becomes exactly 2H

EVR from Pin ⑩ of IC303
REC C RF Level Adjustment

Mode	Record
Signal	Color bar (VIE
Mesurement Point	Pin ③ of IC4 (REC C RF) (JLC
Mesurement Instrument	Oscilloscop
Adjustment Address	D
Adjustment Page	8C
Specified Value	66 ± 2mV

Refer to 9-6-15 Ad

VIDEO 2 VIDEO 2


19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
IC552
1H DELAY ×4 PLL
IC404
CHROMA PROCESS
IC405
VCA
IC406
INVERTER
IC071
PAL JOG PROCESS
Q444, 446, 420
BPF FREQ. SWITCH
Q447
EDIT SWITCH
Q071
JOG SWITCH
Q072
SWITCH
Q073
AMP
Q074
BUFFER
Q075
SWITCH
Q076
INVERTER
Q441
PB C SW
Q437
ATT.
Q438
ACK
Q440
ACK
Q442
AMP
Q443
INVERT AMP BUFFER
Q445
BUFFER
Q439
BUFFER
Q558
CLAMP TIME CONSTANT SWITCH
Q559
INVERT AMP
Q560
BUFFER
Q561
CAM C SW
Q566
C MUTE
Q419
BUFFER
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 126)
VC-129 BOARD
(VIDEO 2 (SR) BLOCK)

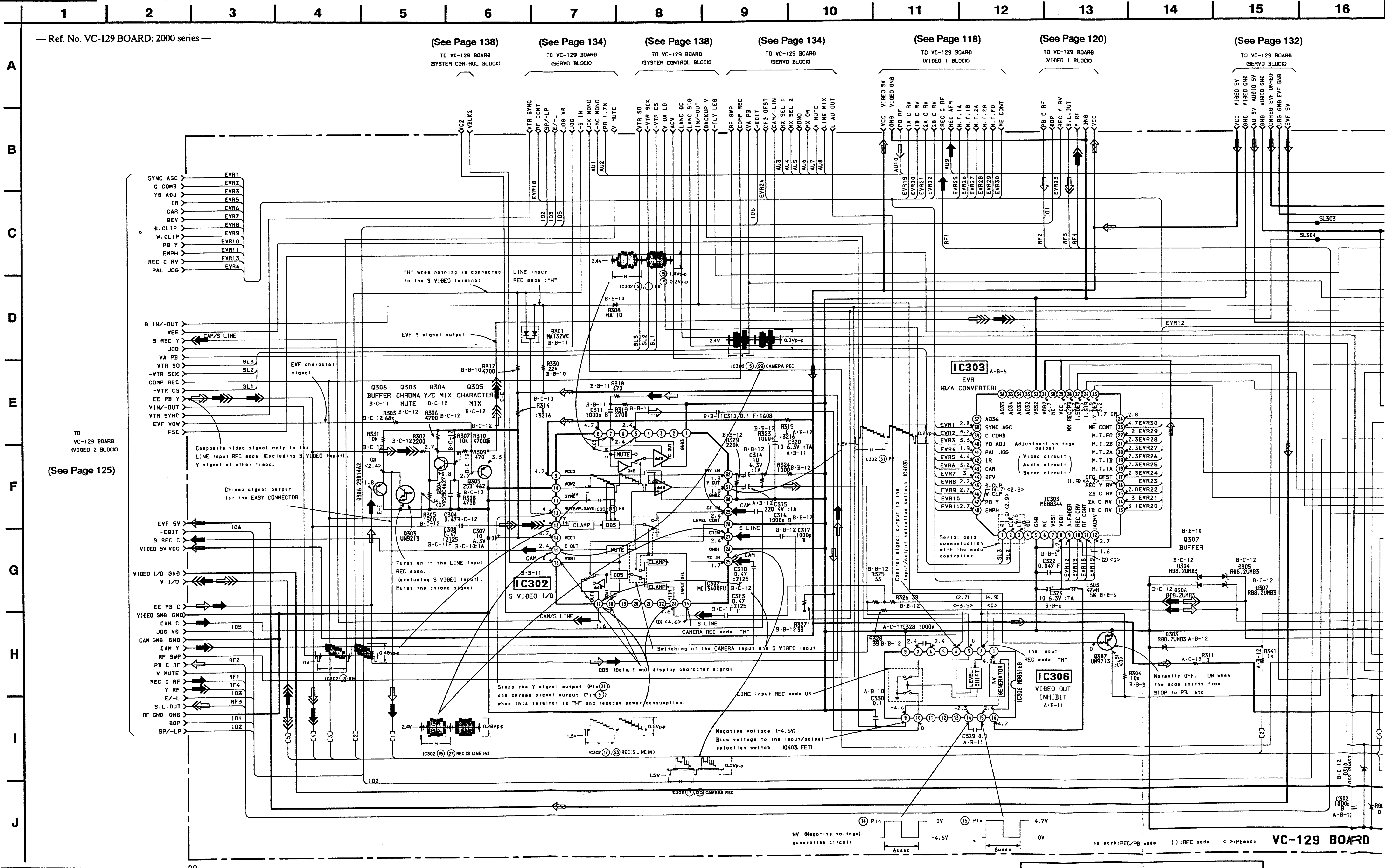
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	
PB	⇨	⇨⇨	⇨⇨⇨	

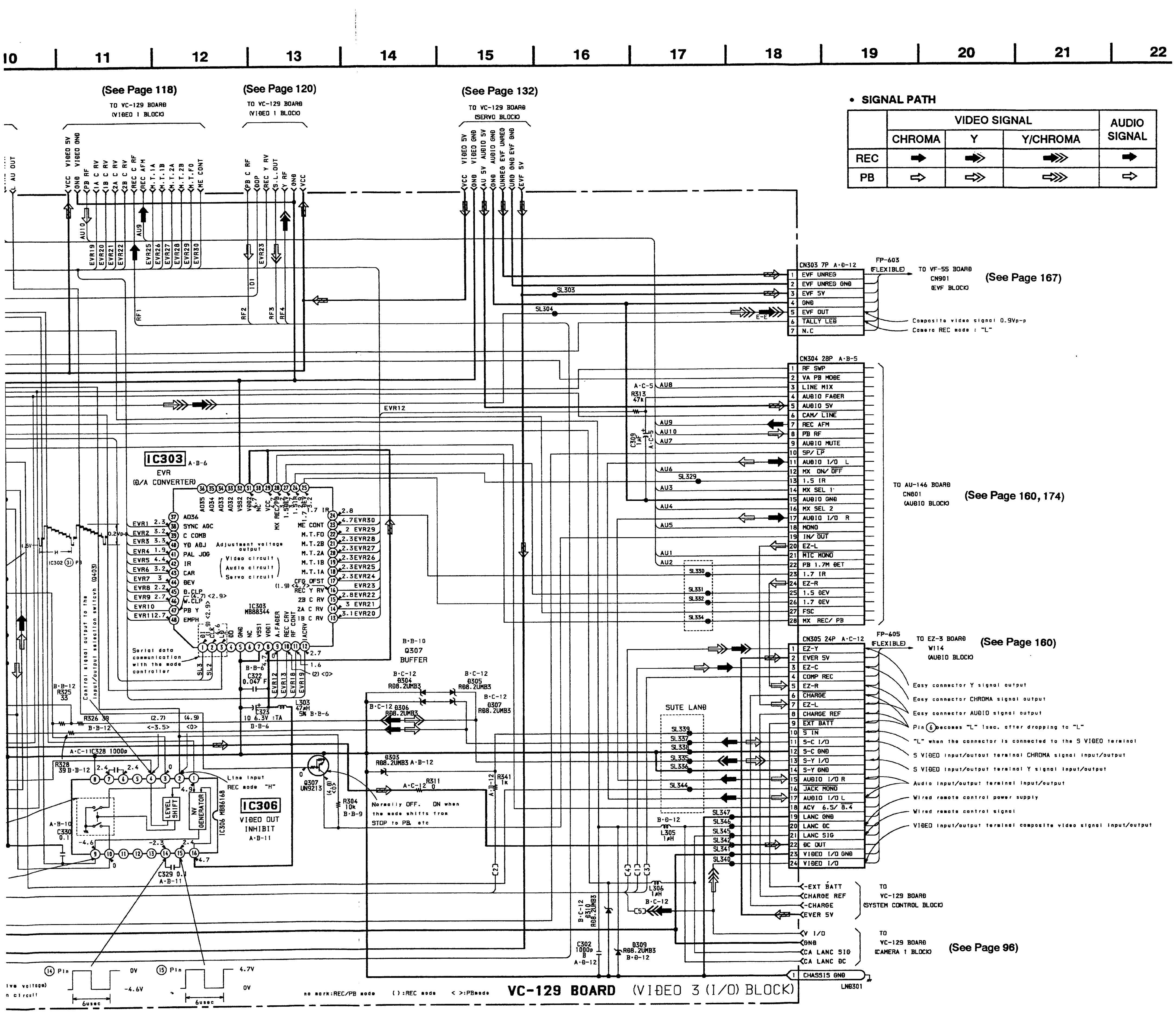
VC-129 (VIDEO 3 (I/O)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. VC-129 BOARD: 2000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
(See Page 138)
TO VC-129 BOARD
(SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD
(SERVO BLOCK)
(See Page 138)
TO VC-129 BOARD
(SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD
(SERVO BLOCK)
(See Page 118)
TO VC-129 BOARD
(VIDEO 1 BLOCK)
(See Page 120)
TO VC-129 BOARD
(VIDEO 1 BLOCK)
(See Page 132)
TO VC-129 BOARD
(SERVO BLOCK)
TO
VC-129 BOARD
(VIDEO 2 BLOCK)
(See Page 125)
SYNC AGC
C COMB
YB ADJ
IR
CAR
DEV
B.CLIP
W.CLIP
PB Y
EMPH
REC C RV
PAL JOG
D IN/-OUT
VEE
S REC Y
JOG
VA PB
VTR SO
-VTR SCK
COMP REC
-VTR CS
EE PB Y
VIN/-OUT
VTR SYNC
EVF VDW
FSC
EVF 5V
-EDIT
S REC C
VIDEO 5V VCC
VIDEO I/O GND
V I/O
EE PB C
VIDEO GND GND
CAM C
JOG VD
CAM GND GND
CAM Y
RF SWP
PB C RF
V MUTE
REC C RF
Y RF
E/-L
S.L.OUT
RF GND GND
BOP
SP/-LP
CAM/S LINE
IC302
S VIDEO I/O
IC303
EVR
(D/A CONVERTER)
IC303
MB88344
IC306
VIDEO OUT
INHIBIT
Q306 Q303 Q304 Q305
BUFFER CHROMA Y/C MIX CHARACTER
MUTE MIX
Q303
UN9213
Q305
2SB1462
Q307
BUFFER
Q307
UN9213
D301
MA132WK
D308
MA110
D304
RD8.2UMB3
D305
RD8.2UMB3
D306
RD8.2UMB3
D307
RD8.2UMB3
D303
RD8.2UMB3
"H" when nothing is connected to the S VIDEO terminal
LINE input REC mode :"H"
EVF Y signal output
EVF character signal
Composite video signal only in the LINE input REC mode (Excluding S VIDEO input). Y signal at other times.
Chroma signal output for the EASY CONNECTOR
Turns on in the LINE input REC mode. (excluding S VIDEO input). Mutes the chroma signal
Stops the Y signal output (Pin 31) and chroma signal output (Pin 5) when this terminal is "H" and reduces power consumption.
DDS (Date, Time) display character signal
Switching of the CAMERA input and S VIDEO input
CAMERA REC mode "H"
LINE input REC mode ON
Line input REC mode "H"
Negative voltage (-4.6V) Bias voltage to the input/output selection switch (Q403, FET)
Control signal output to the input/output selection switch (Q403)
Serial data communication with the mode controller
Adjustment voltage output
Video circuit
Audio circuit
Servo circuit
Normally OFF. ON when the mode shifts from STOP to PB, etc
NV (Negative voltage) generation circuit
14 Pin
15 Pin
6usec
IC302 29 CAMERA REC
IC302 15, 27 REC (S LINE IN)
IC302 17, 23 REC (S LINE IN)
IC302 17, 25 CAMERA REC
no mark:REC/PB mode
( ):REC mode
< >:PB mode
VC-129 BOARD

09

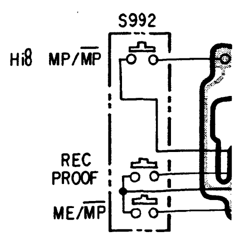

10
11
12
13
14
15
16
17
18
19
20
21
22
(See Page 118)
TO VC-129 BOARD
(VIDEO 1 BLOCK)
VCC VIDEO 5V
GND VIDEO GND
PB RF
1A C RV
1B C RV
2A C RV
2B C RV
REC C RF
REC AFM
M.T.1A
M.T.1B
M.T.2A
M.T.2B
M.T.FO
ME CONT
L AU OUT
(See Page 120)
TO VC-129 BOARD
(VIDEO 1 BLOCK)
PB C RF
DOP
REC Y RV
S.L.OUT
Y RF
GND
VCC
(See Page 132)
TO VC-129 BOARD
(SERVO BLOCK)
VCC VIDEO 5V
GND VIDEO GND
AU 5V AUDIO 5V
GND AUDIO GND
UNREG EVF UNREG
URG GND EVF GND
EVF 5V
AU10
AU9
EVR19
EVR20
EVR21
EVR22
EVR25
EVR26
EVR27
EVR28
EVR29
EVR30
EVR23
IO1
RF1
RF2
RF3
RF4
SL303
SL304
E-E
CN303 7P A·D-12
1 EVF UNREG
2 EVF UNREG GND
3 EVF 5V
4 GND
5 EVF OUT
6 TALLY LED
7 N.C
FP-603
(FLEXIBLE)
TO VF-55 BOARD
CN901
(EVF BLOCK)
(See Page 167)
Composite video signal 0.9Vp-p
Camera REC mode : "L"
CN304 28P A·B-5
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/ LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/ LP
11 AUDIO I/O L
12 MX ON/ OFF
13 1.5 IR
14 MX SEL 1
15 AUDIO GND
16 MX SEL 2
17 AUDIO I/O R
18 MONO
19 IN/ OUT
20 EZ-L
21 MIC MONO
22 PB 1.7M DET
23 1.7 IR
24 EZ-R
25 1.5 DEV
26 1.7 DEV
27 FSC
28 MX REC/ PB
TO AU-146 BOARD
CN801
(AUDIO BLOCK)
(See Page 160, 174)
A·C-5 AU8
R313
47k
C309
1μF
AU9
AU10
AU7
AU6
SL329
AU3
AU4
AU5
AU1
AU2
SL330
SL331
SL332
SL334
EVR12
IC303 A·B-6
EVR
(D/A CONVERTER)
AO36
SYNC AGC
C COMB
YD ADJ
PAL JOG
IR
CAR
DEV
B.CLP
W.CLP
PB Y
EMPH
EVR1 2.3
EVR2 3.2
EVR3 3.3
EVR4 1.9
EVR5 4.4
EVR6 3.2
EVR7 3
EVR8 2.2
EVR9 2.7
EVR10
EVR11 2.7
AO35
AO34
AO33
AO32
VSS2
VDD2
NC
VCC
MX REC/PB
1.5DEV
1.5IR
1.7 DEV
1.7 IR
ME CONT
M.T.FO
M.T.2B
M.T.2A
M.T.1B
M.T.1A
CFG OFST
REC Y RV
2B C RV
2A C RV
1B C RV
2.8
4.7 EVR30
2 EVR29
2.3 EVR28
2.3 EVR27
2.3 EVR26
2.3 EVR25
2.3 EVR24
EVR23
2.8 EVR22
3 EVR21
3.1 EVR20
(1.9) <4.7>
(4.7) <2.9>
Adjustment voltage output
Video circuit
Audio circuit
Servo circuit
IC303
MB88344
DI
CLK
LD
DO
GND
NC
VSS1
VDD1
A.FADER
REC CRV
RF CONT
IACRV
Serial data communication with the mode controller
SL3
SL2
2.7
1.6
(2) <0>
B·B-6
C322
0.047 F
EVR12
EVR13
EVR18
EVR19
C323
10 6.3V :TA
B·B-6
L303
47μH
5% B·B-6
B·B-10
Q307
BUFFER
B·C-12
D304
RD8.2UMB3
B·C-12
D305
RD8.2UMB3
B·C-12
D307
RD8.2UMB3
B·C-12 D306
RD8.2UMB3
D303
RD8.2UMB3 A·B-12
Q307
UN9213
R304
10k
B·B-9
A·C-12 R311 0
R341
1k
A·B-12
Normally OFF. ON when the mode shifts from STOP to PB, etc
0.2Vp-p
1.5V
IC302 ③ PB
Input/output selection switch (Q403)
Control signal output to the input/output selection switch
B·B-12
R325
33
R326 39
B·B-12
(2.7)
<-3.5>
(4.9)
<0>
A·C-11 C328 1000p
R328
39 B·B-12
2.4
2.4
0
Line input
REC mode "H"
4.9
LEVEL SHIFT
NV GENERATOR
IC306 MB86168
IC306
VIDEO OUT
INHIBIT
A·B-11
A·B-10
C330
0.1
-4.6
-2.3
2.4
4.7
0
C329 0.1
A·B-11
⑭ Pin
0V
-4.6V
6usec
⑮ Pin
4.7V
0V
6usec
(active voltage)
in circuit
SUTE LAND
SL339
SL337
SL338
SL335
SL336
SL344
SL347
SL346
SL345
SL343
SL341
SL340
B·D-12
L305
1μH
L306
1μH
B·C-12
B·C-12
D310
RD8.2UMB3
C302
1000p
B
A·B-12
D309
RD8.2UMB3
B·B-12
CN305 24P A·C-12
1 EZ-Y
2 EVER 5V
3 EZ-C
4 COMP REC
5 EZ-R
6 CHARGE
7 EZ-L
8 CHARGE REF
9 EXT BATT
10 S IN
11 S-C I/O
12 S-C GND
13 S-Y I/O
14 S-Y GND
15 AUDIO I/O R
16 JACK MONO
17 AUDIO I/O L
18 ACV 6.5/ 8.4
19 LANC GND
20 LANC DC
21 LANC SIG
22 DC OUT
23 VIDEO I/O GND
24 VIDEO I/O
FP-605
(FLEXIBLE)
TO EZ-3 BOARD
W114
(AUDIO BLOCK)
(See Page 160)
Easy connector Y signal output
Easy connector CHROMA signal output
Easy connector AUDIO signal output
Pin ⑥ becomes "L" 1sec. after dropping to "L"
"L" when the connector is connected to the S VIDEO terminal
S VIDEO input/output terminal CHROMA signal input/output
S VIDEO input/output terminal Y signal input/output
Audio input/output terminal input/output
Wired remote control power supply
Wired remote control signal
VIDEO input/output terminal composite video signal input/output
-EXT BATT
CHARGE REF
-CHARGE
EVER 5V
TO
VC-129 BOARD
(SYSTEM CONTROL BLOCK)
V I/O
GND
CA LANC SIG
CA LANC DC
TO
VC-129 BOARD
(CAMERA 1 BLOCK)
(See Page 96)
1 CHASSIS GND
LND301
no mark:REC/PB mode ( ):REC mode < >:PBmode
VC-129 BOARD (VIDEO 3 (I/O) BLOCK)

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	➡
PB	⇨	⇨>	⇨>>	⇨

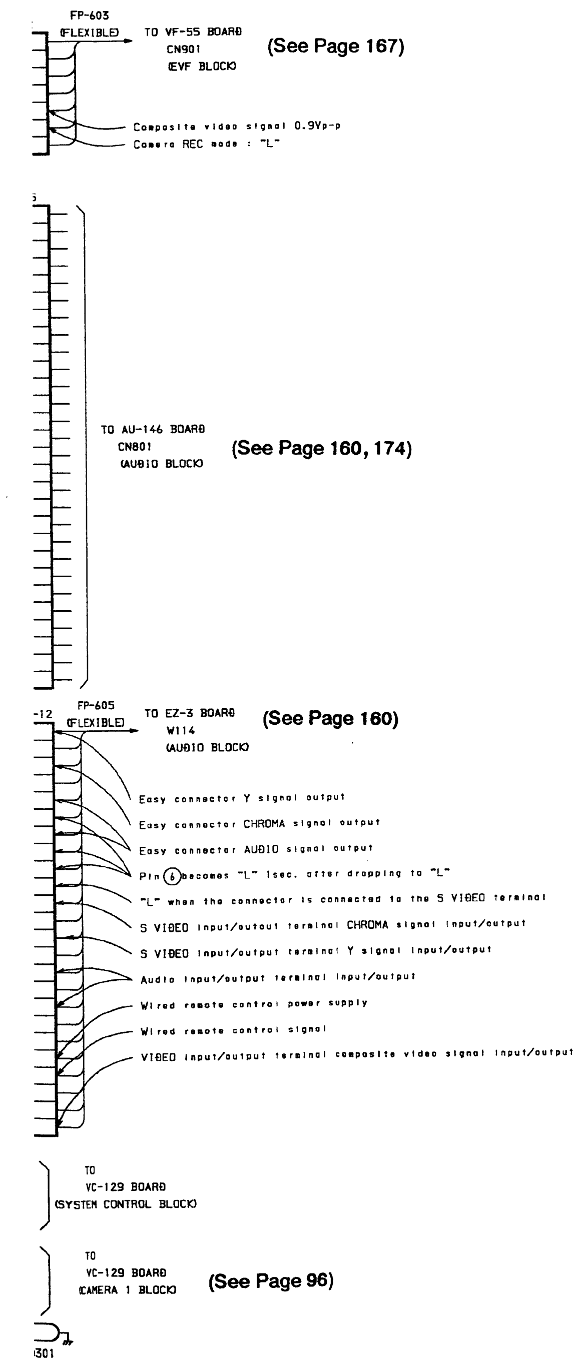
FP-423 (TAPE TOP/E

— Ref. No. FP-423 BOARD:


S992
Hi8 MP/MP
REC
PROOF
ME/MP

SIGNAL PATH

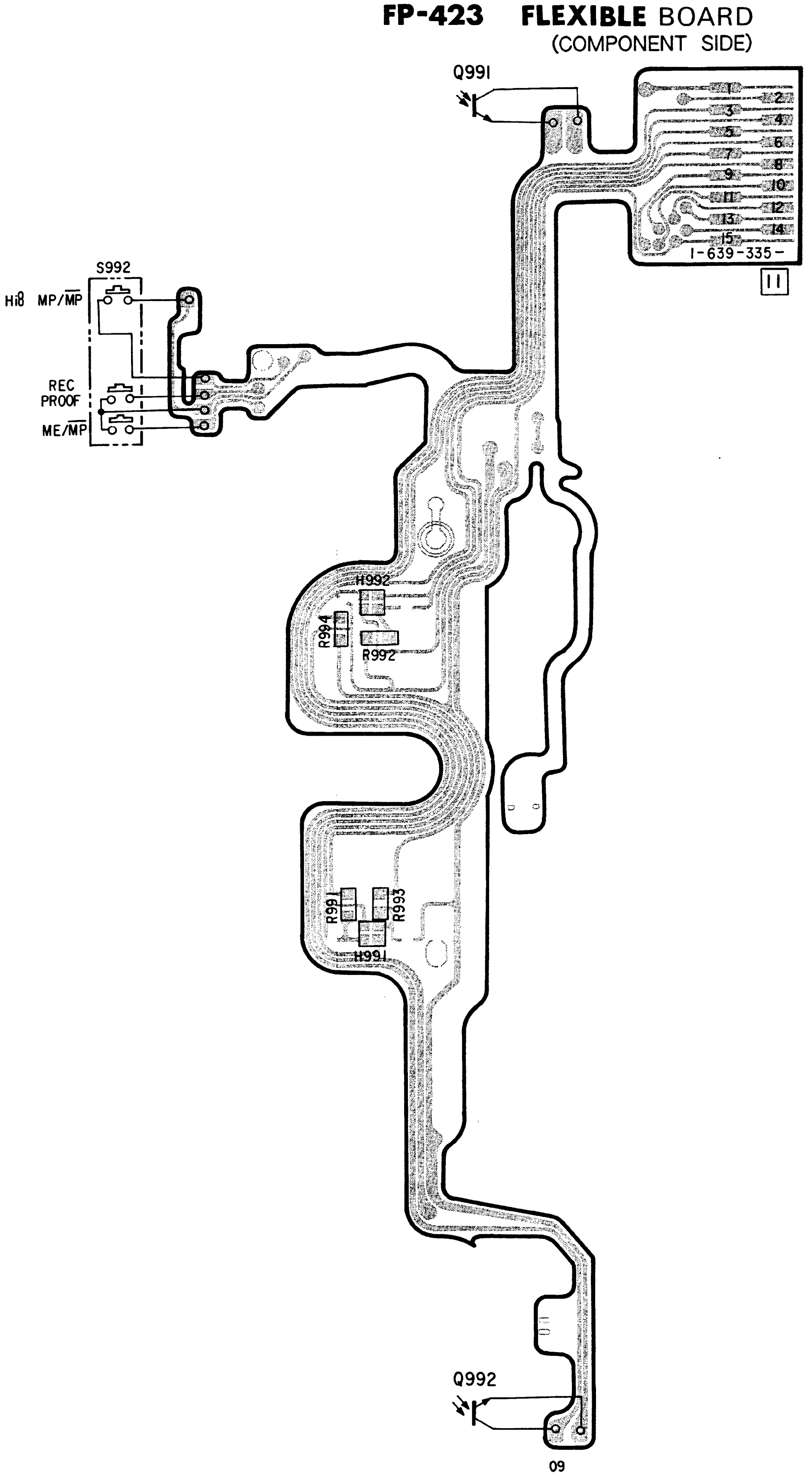
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

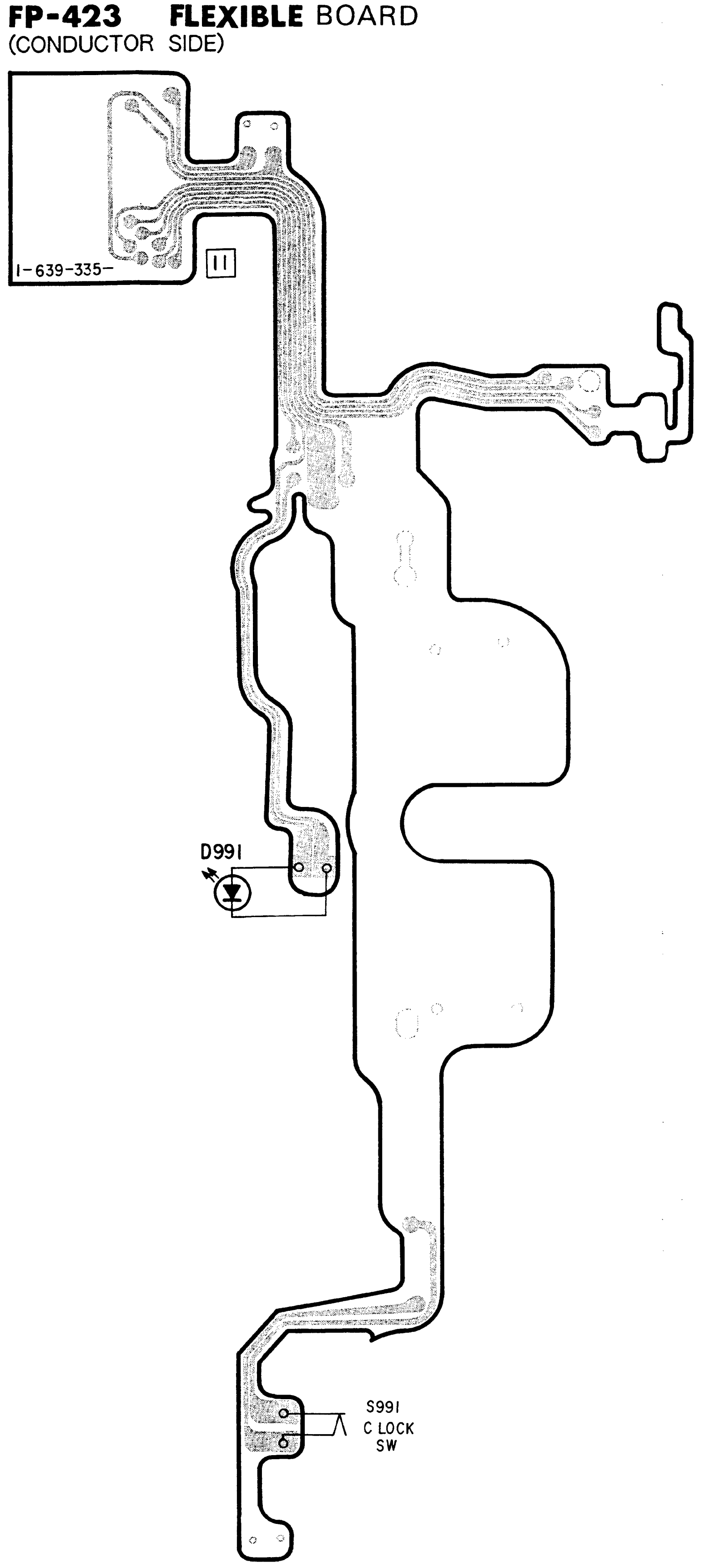

FP-603
(FLEXIBLE)
TO VF-55 BOARD
CN901
(EVF BLOCK)
(See Page 167)
Composite video signal 0.9Vp-p
Camera REC mode : "L"
TO AU-146 BOARD
CN801
(AUDIO BLOCK)
(See Page 160, 174)
-12
FP-605
(FLEXIBLE)
TO EZ-3 BOARD
W114
(AUDIO BLOCK)
(See Page 160)
Easy connector Y signal output
Easy connector CHROMA signal output
Easy connector AUDIO signal output
Pin ⑥ becomes "L" 1sec. after dropping to "L"
"L" when the connector is connected to the S VIDEO terminal
S VIDEO input/outout terminal CHROMA signal input/output
S VIDEO input/output terminal Y signal input/output
Audio input/output terminal input/output
Wired remote control power supply
Wired remote control signal
VIDEO input/output terminal composite video signal input/output
TO
VC-129 BOARD
(SYSTEM CONTROL BLOCK)
TO
VC-129 BOARD
(CAMERA 1 BLOCK)
(See Page 96)
301

FP-423 (TAPE TOP/END SENSOR, TAPE SELECT) PRINTED WIRING BOARD

— Ref. No. FP-423 BOARD: 4000 series —

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

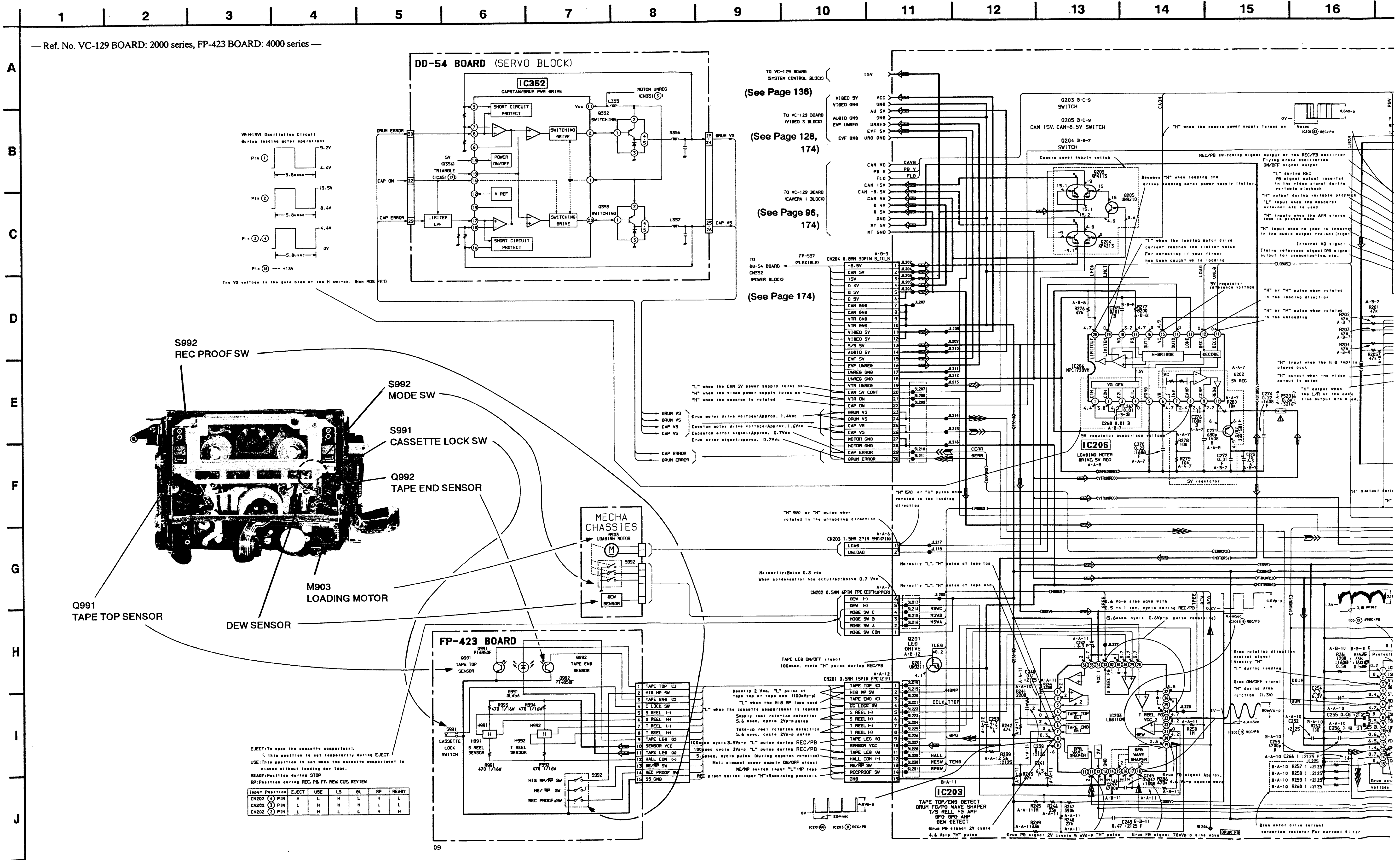

FP-423 FLEXIBLE BOARD
(COMPONENT SIDE)
Q991
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1-639-335-
11
S992
Hi8 MP/MP
REC PROOF
ME/MP
H992
R994
R992
R991
R993
H991
Q992
09


FP-423 FLEXIBLE BOARD
(CONDUCTOR SIDE)
1-639-335-
11
D991
S991
C LOCK
SW

VC-129 (SERVO CONTROL (SS)), FP-423 (TAPE TOP/END SENSOR, TAPE SELECT) SCHEMATIC DIAGRAMS

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. VC-129 BOARD: 2000 series, FP-423 BOARD: 4000 series —

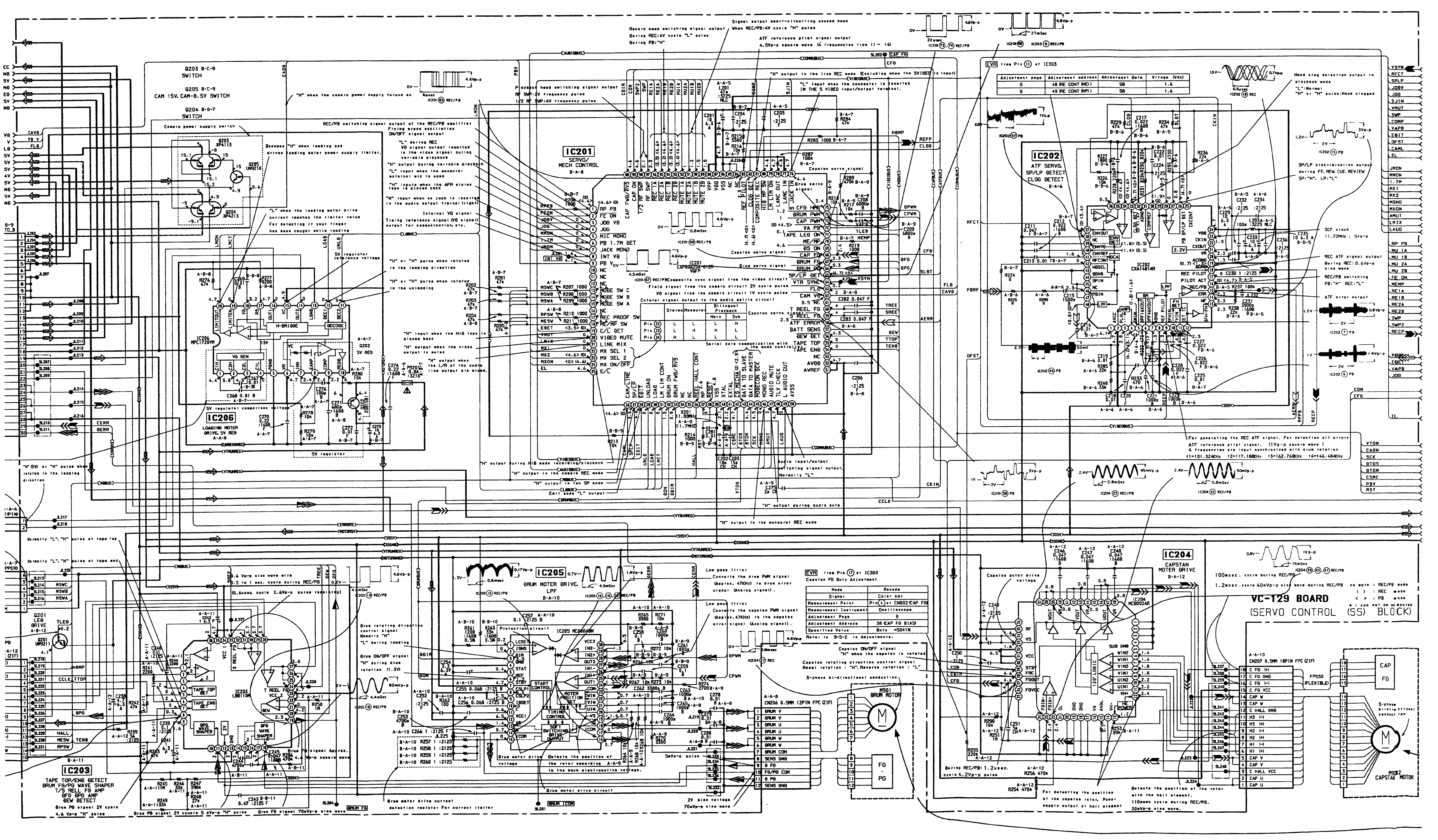

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
DD-54 BOARD (SERVO BLOCK)
IC352
CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
LIMITER LPF
SWITCHING DRIVE
Q352 SWITCHING
Q353 SWITCHING
L355
L357
MOTOR UNREG
DRUM ERROR
CAP ON
CAP ERROR
DRUM VS
CAP VS
5V (Q354)
TRIANGLE (IC351 ⑰)
VG (+13V) Oscillation Circuit
During loading motor operations
Pin ①
9.2V
4.4V
5.8usec
Pin ②
13.5V
8.4V
Pin ③,④
0V
Pin ⑱ --- +13V
The VG voltage is the gate bias of the H switch. (Nch MOS FET)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 136)
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 128, 174)
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96, 174)
TO DD-54 BOARD CN352 (POWER BLOCK)
(See Page 174)
FP-537 (FLEXIBLE)
CN204 0.8MM 30PIN B_TO_B
CN203 1.5MM 2PIN SMD PIN
CN202 0.5MM 6PIN FPC (ZIF)(UPPER)
CN201 0.5MM 15PIN FPC (ZIF)
IC206
LOADING MOTER DRIVE, 5V REG
IC203
TAPE TOP/END DETECT
DRUM FG/PG WAVE SHAPER
T/S REEL FG AMP
DFG DPG AMP
DEW DETECT
Q203 SWITCH
Q205 SWITCH
Q204 SWITCH
Q201 LED DRIVE
5V regulator
S992 REC PROOF SW
S992 MODE SW
S991 CASSETTE LOCK SW
Q992 TAPE END SENSOR
Q991 TAPE TOP SENSOR
M903 LOADING MOTOR
DEW SENSOR
MECHA CHASSIES
M903 LOADING MOTOR
DEW SENSOR
FP-423 BOARD
Q991 PT4850F
TAPE TOP SENSOR
Q992 TAPE END SENSOR
D991 GL453
S991 CASSETTE LOCK SWITCH
H991 S REEL SENSOR
H992 T REEL SENSOR
HI8 MP/MP SW
ME/MP SW
REC PROOF SW
TAPE TOP
HI8 MP SW
TAPE END
CC LOCK SW
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
TAPE LED
SENSOR VCC
HALL COM (-)
ME/MP SW
REC PROOF SW
SS GND
09

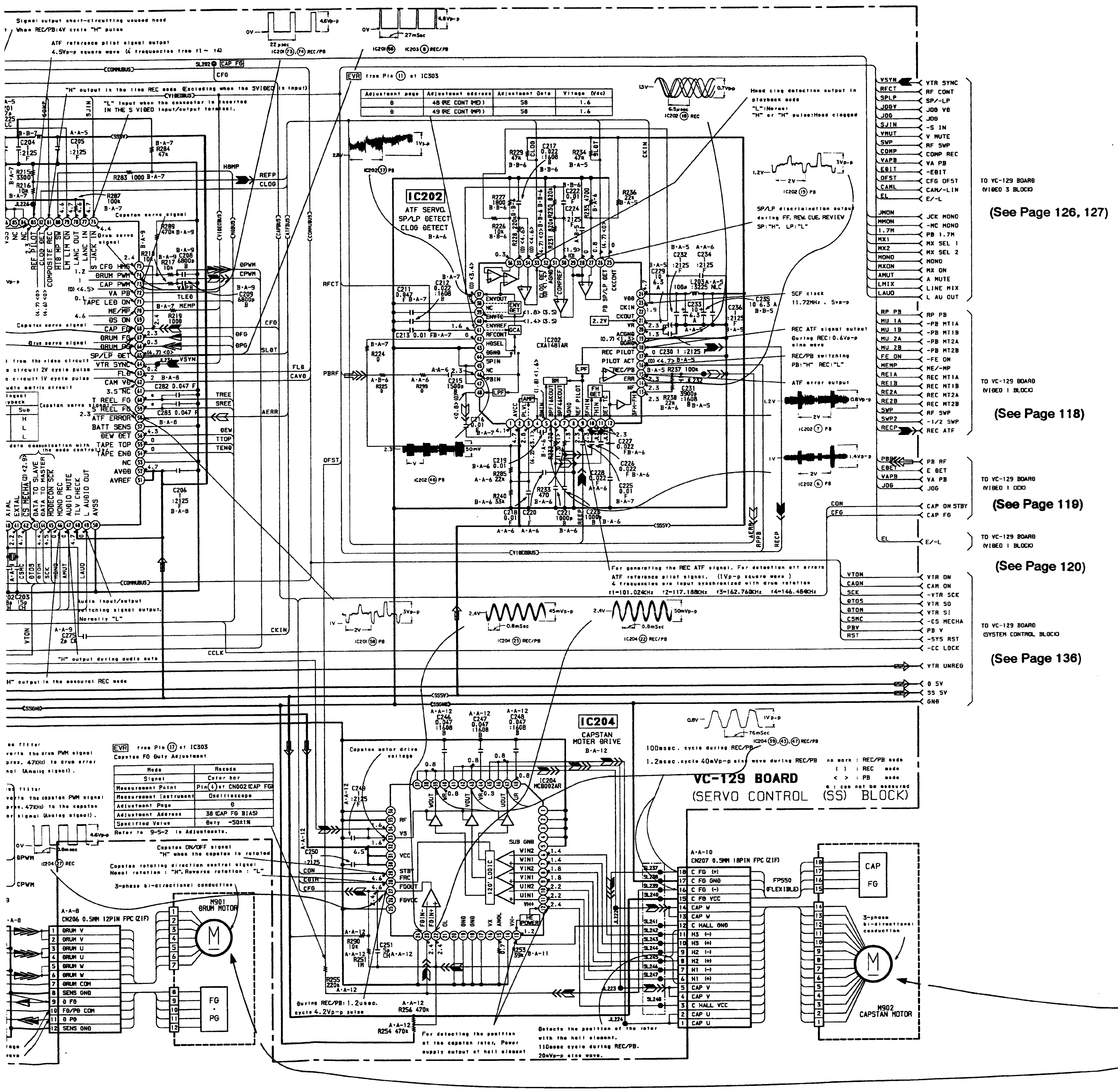
EJECT:To open the cassette compartment.
↖ this position is set temporarily during EJECT.
USE:This position is set when the cassette compartment is closed without loading any tape.
READY:Position during STOP
RP:Position during REC, PB, FF, REW, CUE, REVIEW

Input Position	EJECT	USE	LS	GL	RP	READY
CN202 ④ PIN	H	L	H	L	H	L
CN202 ③ PIN	L	H	H	H	L	L
CN202 ② PIN	L	H	L	L	H	H

n the VC-129 board.

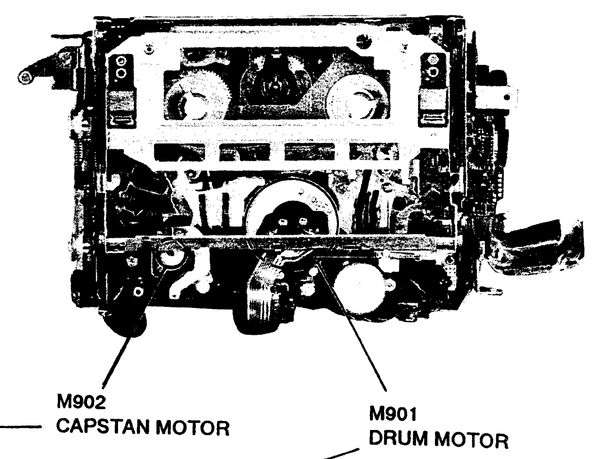
11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27


VC-129 BOARD
(SERVO CONTROL (SS) BLOCK)
IC201
SERVO/
MECH CONTROL
B-A-8
IC202
ATF SERVO,
SP/LP DETECT
CLOG DETECT
B-A-6
IC203
TAPE TOP/END DETECT
DRUM FG/PG WAVE SHAPER
T/S REEL FG AMP
DFG DPG AMP
DEW DETECT
B-A-11
IC204
CAPSTAN
MOTER DRIVE
B-A-12
IC205
DRUM MOTER DRIVE
LPF
B-A-10
IC206
LOADING MOTER
DRIVE 5V REG
A-A-8
Q203 B-C-9
SWITCH
Q205 B-C-9
CAM 15V, CAM-8.5V SWITCH
Q204 B-B-7
SWITCH
Q201
LED
DRIVE
A-B-12
M901
DRUM MOTOR
M902
CAPSTAN MOTOR
EVR from Pin (11) of IC303
Adjustment page | Adjustment address | Adjustment Data | Vitage (Vdc)
0 | 48 (RE CONT (ME)) | 58 | 1.6
0 | 49 (RE CONT (MP)) | 58 | 1.6
EVR from Pin (17) of IC303
Capstan FG Duty Adjustment
Mode | Recode
Signal | Color bar
Measurement Point | Pin (4) of CN002 (CAP FG)
Measurement Instrument | Oscilloscope
Adjustment Page | 0
Adjustment Address | 38 (CAP FG BIAS)
Specified Value | Duty =50±1%
Refer to 9-5-2 in Adjustments.
Capstan ON/OFF signal
"H" when the capstan is rotated
Capstan rotating direction control signal
Nomal rotation : "H", Reverse rotation : "L"
3-phase bi-directional conduction
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
CN206 0.5MM 12PIN FPC (ZIF)
CN207 0.5MM 18PIN FPC (ZIF)
FP550 (FLEXIBLE)


VC-129 BOARD
(SERVO CONTROL (SS) BLOCK)
IC202
ATF SERVO, SP/LP DETECT, CLOG DETECT
IC202 CXA1481AR
IC204
CAPSTAN MOTER DRIVE
IC204 MCB002AR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
FG PG
CAP FG
CN206 0.5MM 12PIN FPC (ZIF)
CN207 0.5MM 18PIN FPC (ZIF)
FP550 (FLEXIBLE)
3-phase bi-directional conduction
VTR SYNC
RF CONT
SP/-LP
JOG VD
JOG
-S IN
V MUTE
RF SWP
COMP REC
VA PB
-EDIT
CFG OFST
CAM/-LIN
E/-L
JCK MONO
-MC MONO
PB 1.7M
MX SEL 1
MX SEL 2
MONO
MX ON
A MUTE
LINE MIX
L AU OUT
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 126, 127)
RP PB
-PB MT1A
-PB MT1B
-PB MT2A
-PB MT2B
-FE ON
ME/-MP
REC MT1A
REC MT1B
REC MT2A
REC MT2B
RF SWP
-1/2 SWP
REC ATF
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 118)
PB RF
E DET
VA PB
JOG
CAP ON STBY
CAP FG
TO VC-129 BOARD (VIDEO 1 OCK)
(See Page 119)
E/-L
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 120)
VTR ON
CAM ON
-VTR SCK
VTR SO
VTR SI
-CS MECHA
PB V
-SYS RST
-CC LOCK
VTR UNREG
D 5V
SS 5V
GND
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 136)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
* : can not be measured

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo			
Capstan phase servo	➤»		▷»
Capstan servo (speed and phase)		▷»»	
Ref. signal	➤		▷


M902
CAPSTAN MOTOR
M901
DRUM MOTOR

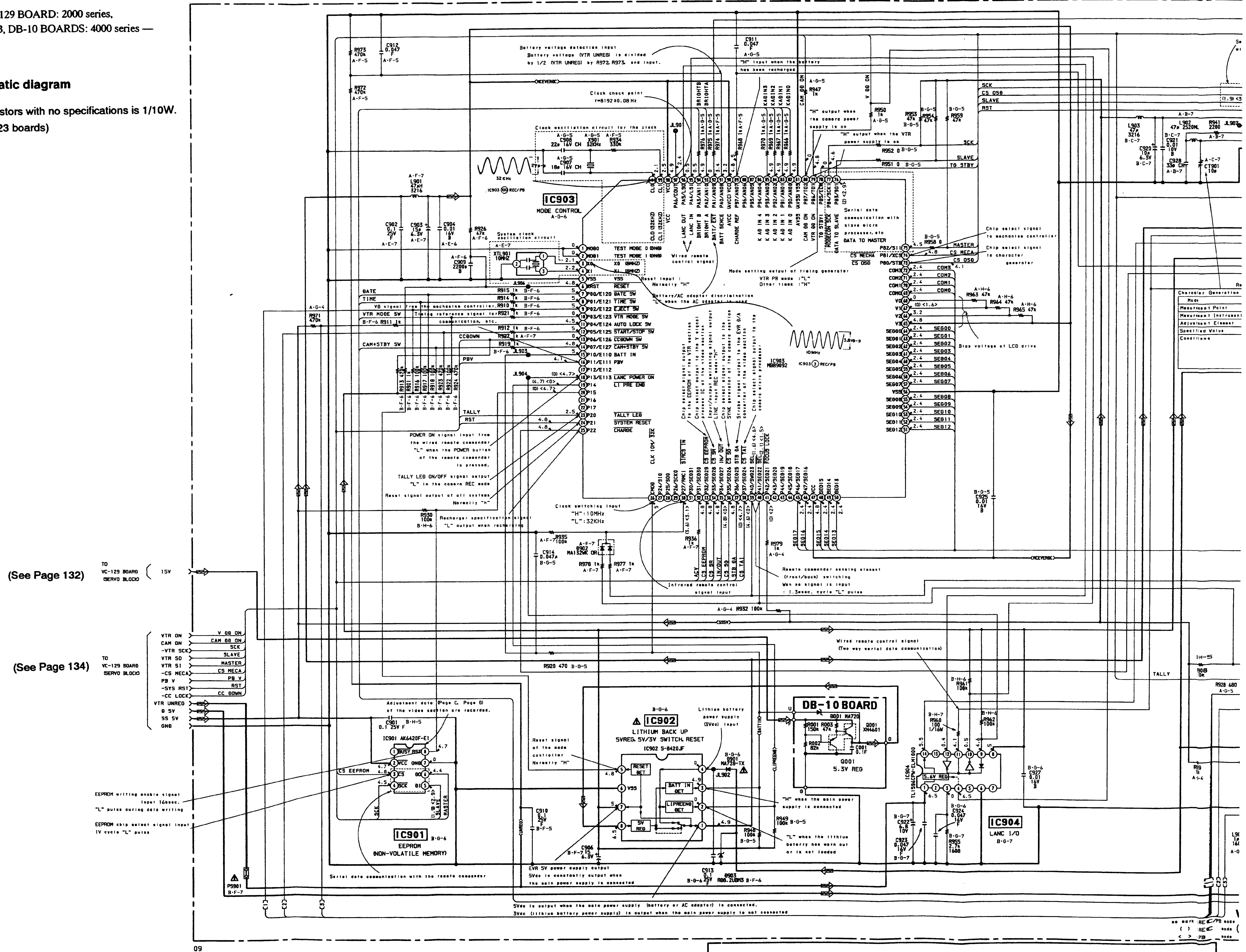
VC-129 (SYSTEM CONTROL (FD)), RE-22 (FRONT REMOTE CONTROL RECEIVER), RE-23 (REAR REMOTE CONTROL RECEIVER), CF-33 (CAMERA FUNCTION SWITCH), FK-33 (VTR FUNCTION SWITCH), DB-1

1 2 3 4 5 6 7 8 9 10 11 12 13 14

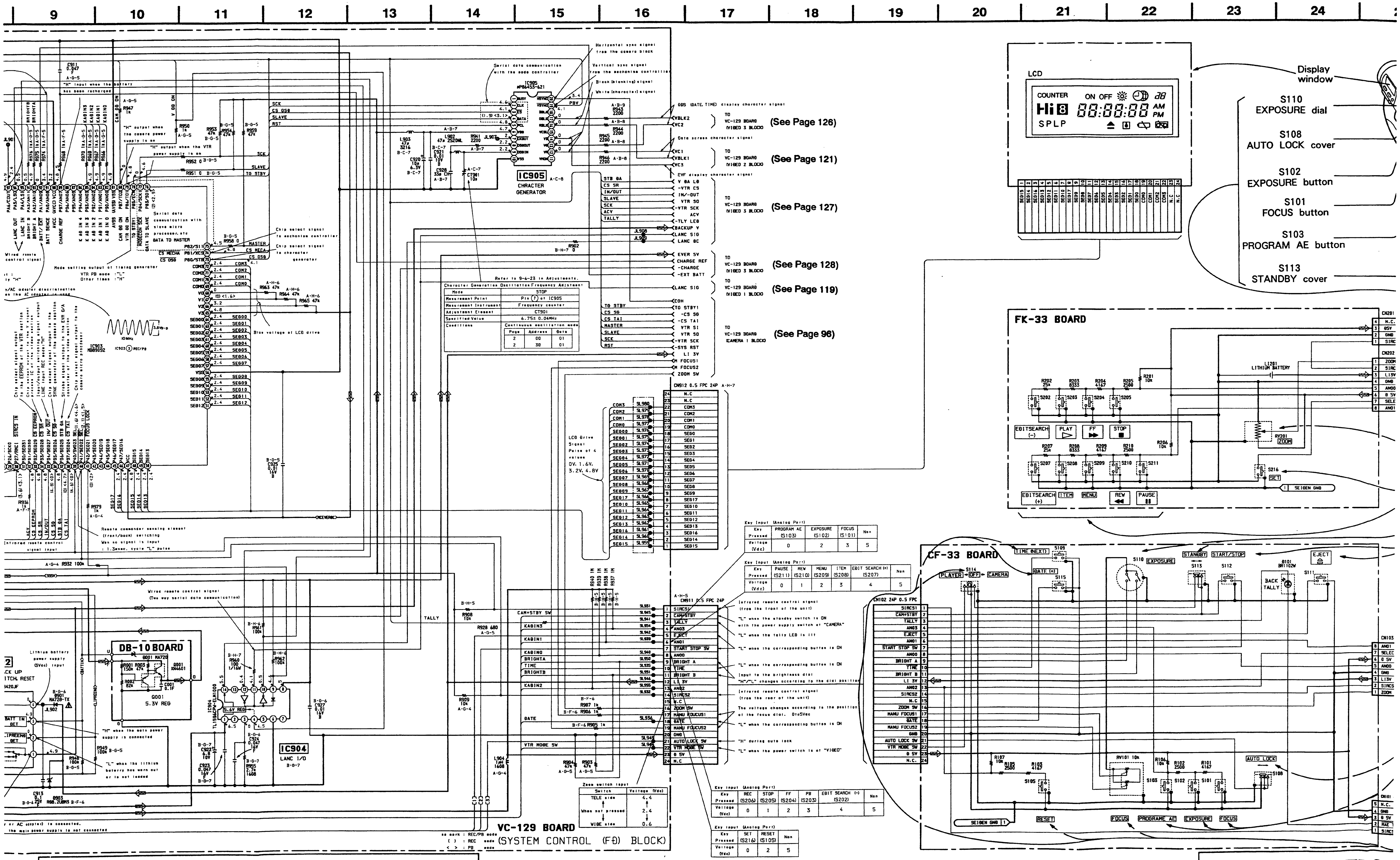
A B C D E F G H I J

— Ref. No. VC-129 BOARD: 2000 series,
RE-22, RE-23, DB-10 BOARDS: 4000 series —

- **For schematic diagram**
- The chip resistors with no specifications is 1/10W. (RE-22, RE-23 boards)


(See Page 132)
TO VC-129 BOARD (SERVO BLOCK)
15V
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
VTR ON
CAM ON
VTR SCK
VTR SO
VTR SI
CS MECA
PB V
SYS RST
CC LOCK
VTR UNREG
8 5V
SS 5V
GND
IC903
MODE CONTROL
A-G-6
IC901
EEPROM
(NON-VOLATILE MEMORY)
IC902
LITHIUM BACK UP
5VREG, 5V/3V SWITCH RESET
IC902 S-8420JF
DB-10 BOARD
Q001
5.3V REG
IC904
LANC I/O
Battery voltage detection input
Clock check point
Clock switching input
"H": 10MHz
"L": 32KHz
Remote commander sensing element
Wired remote control signal
Lithium battery power supply
Serial data communication with the remote commander
5Vdc is output when the main power supply (battery or AC adapter) is connected.
3Vdc (lithium battery power supply) is output when the main power supply is not connected

- Refer to page 108 for Printed Wiring Board on the VC-129, DB-10 boards.


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
IC905
CHRACTER GENERATOR
IC904
LANC I/O
DB-10 BOARD
Q001
5.3V REG
VC-129 BOARD
(SYSTEM CONTROL (FD) BLOCK)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 126)
TO VC-129 BOARD (VIDEO 2 BLOCK) (See Page 121)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 127)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 128)
TO VC-129 BOARD (VIDEO 1 BLOCK) (See Page 119)
TO VC-129 BOARD (CAMERA 1 BLOCK) (See Page 96)
CN912 0.5 FPC 24P
CN911 0.5 FPC 24P
LCD
COUNTER
ON OFF
Hi8
SPLP
AM
PM
Display window
S110 EXPOSURE dial
S108 AUTO LOCK cover
S102 EXPOSURE button
S101 FOCUS button
S103 PROGRAM AE button
S113 STANDBY cover
FK-33 BOARD
EDITSEARCH (–)
PLAY
FF
STOP
EDITSEARCH (+)
ITEM
MENU
REW
PAUSE
SET
ZOOM
CF-33 BOARD
CN102 24P 0.5 FPC
TIME (NEXT)
DATE (+)
PLAYER OFF CAMERA
EXPOSURE
STANDBY
START/STOP
EJECT
AUTO LOCK
RESET
FOCUS
PROGRAME AE
EXPOSURE
FOCUS
SEIDEN GND

Refer to 9-6-23 in Adjustments.

Character Generation Oscillation Frequency Adjstment

Mode	STOP
Mesurement Point	Pin ⑦ of IC905
Mesurement Instrument	Frequency counter
Adjustment Element	CT901
Specified Value	6.75± 0.04MHz
Conditions	Continuous oscillation mode

Page	Address	Data
2	00	01
2	30	01

Key Input (Analog Port)

Key Pressed	PROGRAM AE (S103)	EXPOSURE (S102)	FOCUS (S101)	Non
Voltage (Vdc)	0	2	3	5

Key Input (Analog Port)

Key Pressed	PAUSE (S211)	REW (S210)	MENU (S209)	ITEM (S208)	EDIT SEARCH (+) (S207)	Non
Voltage (Vdc)	0	1	2	3	4	5

Zoom switch input

Switch	Voltage (Vdc)
TELE side	4.4
↑	↑
When not pressed	2.4
↓	↓
WIDE side	0.6

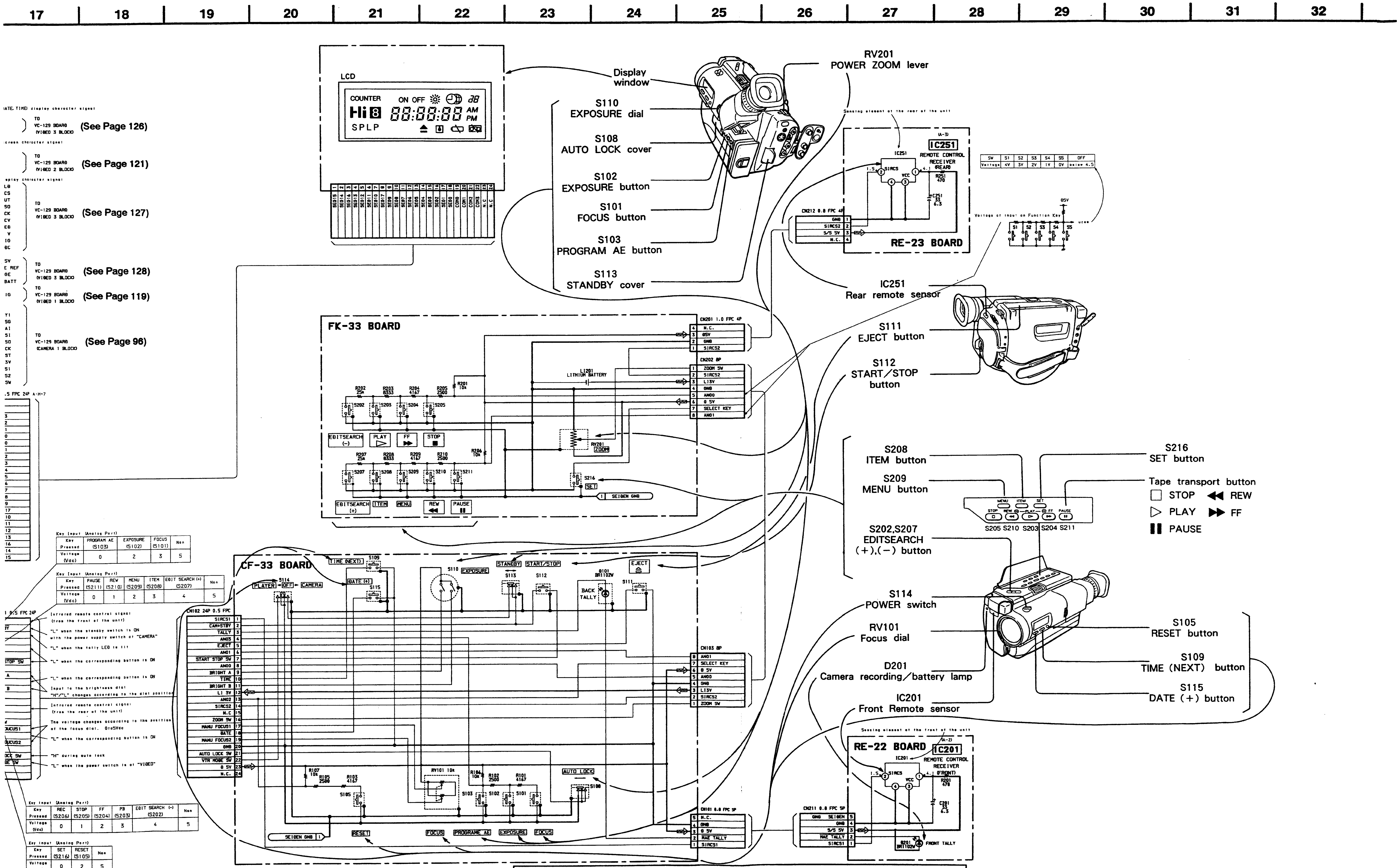
Key input (Analog Port)

Key Pressed	REC (S206)	STOP (S205)	FF (S204)	PB (S203)	EDIT SEARCH (–) (S202)	Non
Voltage (Vdc)	0	1	2	3	4	5

Key input (Analog Port)

Key Pressed	SET (S216)	RESET (S105)	Non
Voltage (Vdc)	0	2	5

- Refer to page 108 for Printed Wiring Board on the VC-129, DB-10 boards.


17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
LCD
COUNTER
ON OFF
Hi8
AM
PM
SP LP
FK-33 BOARD
CF-33 BOARD
RE-23 BOARD
RE-22 BOARD
IC251
REMOTE CONTROL RECEIVER (REAR)
IC201
REMOTE CONTROL RECEIVER (FRONT)
(See Page 126)
(See Page 121)
(See Page 127)
(See Page 128)
(See Page 119)
(See Page 96)
Display window
S110 EXPOSURE dial
S108 AUTO LOCK cover
S102 EXPOSURE button
S101 FOCUS button
S103 PROGRAM AE button
S113 STANDBY cover
RV201 POWER ZOOM lever
IC251 Rear remote sensor
S111 EJECT button
S112 START/STOP button
S208 ITEM button
S209 MENU button
S202,S207 EDITSEARCH (+),(−) button
S216 SET button
Tape transport button
☐ STOP ◀◀ REW
▷ PLAY ▶▶ FF
▌▌ PAUSE
S205 S210 S203 S204 S211
S114 POWER switch
RV101 Focus dial
D201 Camera recording/battery lamp
IC201 Front Remote sensor
S105 RESET button
S109 TIME (NEXT) button
S115 DATE (+) button
EDITSEARCH (−)
PLAY
FF
STOP
EDITSEARCH (+)
ITEM
MENU
REW
PAUSE
SET
ZOOM
L1201 LITHIUM BATTERY
TIME (NEXT)
DATE (+)
PLAYER OFF CAMERA
EXPOSURE
STANDBY
START/STOP
EJECT
BACK TALLY
AUTO LOCK
RESET
FOCUS
PROGRAM AE
SEIBEN GND
CN102 24P 0.5 FPC
SIRCS1
CAM+STBY
TALLY
AN03
EJECT
AN01
START STOP SW
AN00
BRIGHT A
TIME
BRIGHT B
L1 3V
AN02
SIRCS2
N.C
ZOOM SW
MANU FOCUS1
DATE
MANU FOCUS2
GND
AUTO LOCK SW
VTR MODE SW
8 5V
N.C.
Infrared remote control signal (from the front of the unit)
"L" when the standby switch is ON with the power supply switch at "CAMERA"
"L" when the tally LED is lit
"L" when the corresponding button is ON
Input to the brightness dial "H"/"L" changes according to the dial position
Infrared remote control signal (from the rear of the unit)
The voltage changes according to the position of the focus dial. 0to5Vdc
"H" during auto lock
"L" when the power switch is at "VIDEO"
Voltage of input on Function Key
FRONT TALLY

Key Input (Analog Port)

Key Pressed	PROGRAM AE (S103)	EXPOSURE (S102)	FOCUS (S101)	Non
Voltage (Vdc)	0	2	3	5

Key Input (Analog Port)

Key Pressed	PAUSE (S211)	REW (S210)	MENU (S209)	ITEM (S208)	EDIT SEARCH (+) (S207)	Non
Voltage (Vdc)	0	1	2	3	4	5

Key Input (Analog Port)

Key Pressed	REC (S206)	STOP (S205)	FF (S204)	PB (S203)	EDIT SEARCH (−) (S202)	Non
Voltage (Vdc)	0	1	2	3	4	5

Key Input (Analog Port)

Key Pressed	SET (S216)	RESET (S105)	Non
Voltage (Vdc)	0	2	5

SW	S1	S2	S3	S4	S5	OFF
Voltage	4V	3V	2V	1V	0V	below 4.5

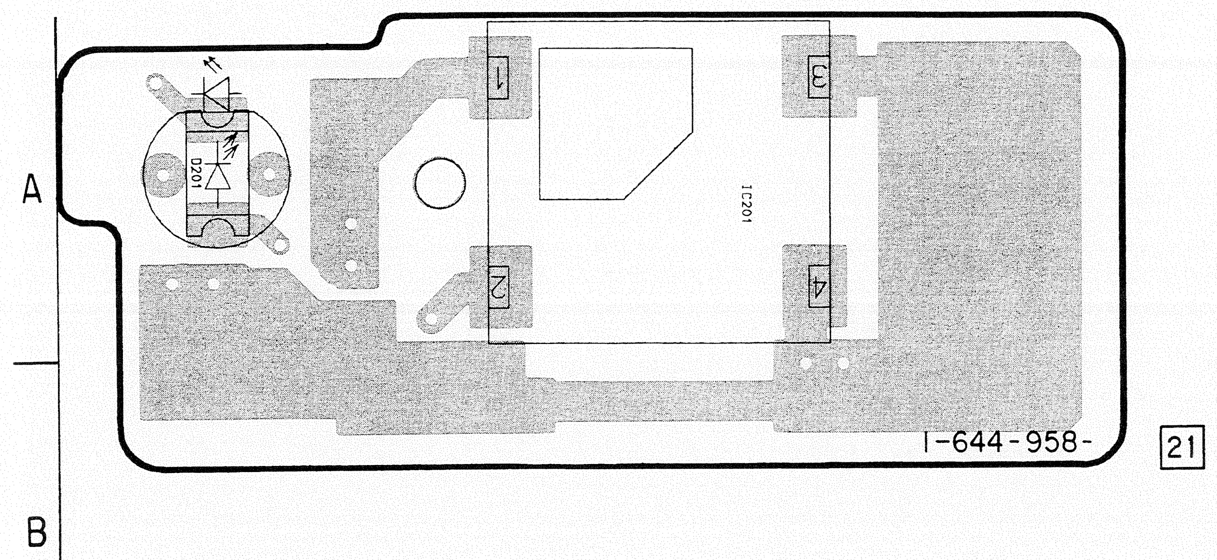
SYSTEM CONTROL SYSTEM CONTROL

RE-22 (FRONT REMOTE CONTROL RECEIVER), RE-23 (REAR REMOTE CONTROL RECEIVER) PRINTED WIRING BOARDS

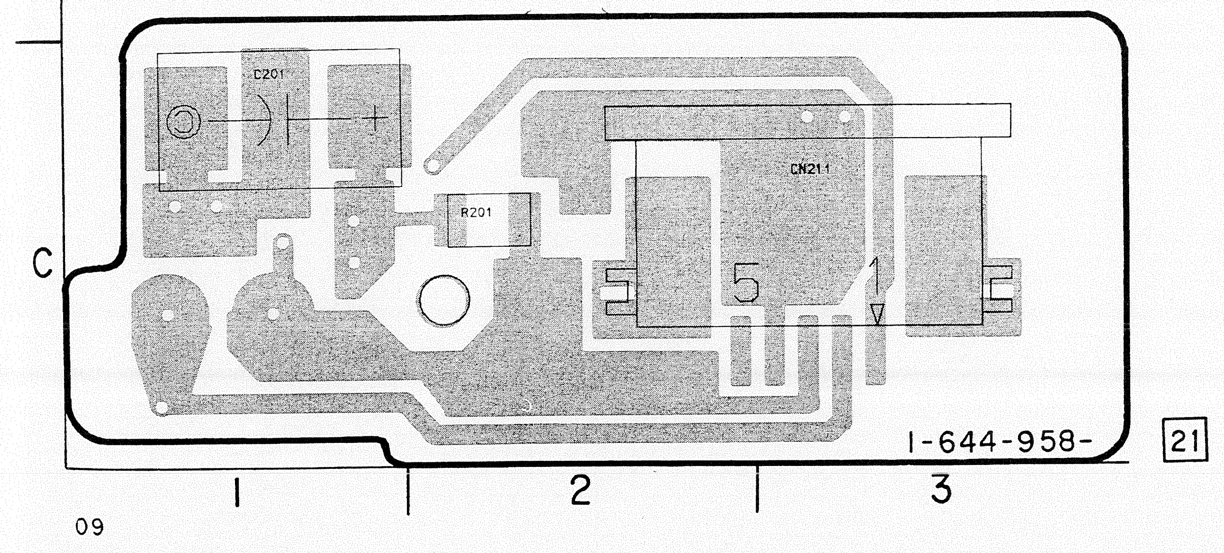
— Ref. No. RE-22, RE-23 BOARDS: 4000 series —

- Refer to page **108** for Printed Wiring Board on the VC-129, DB-10 boards.
- CF-33, FK-33 boards are replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.
- Resistors and capacitors are displayed in red.

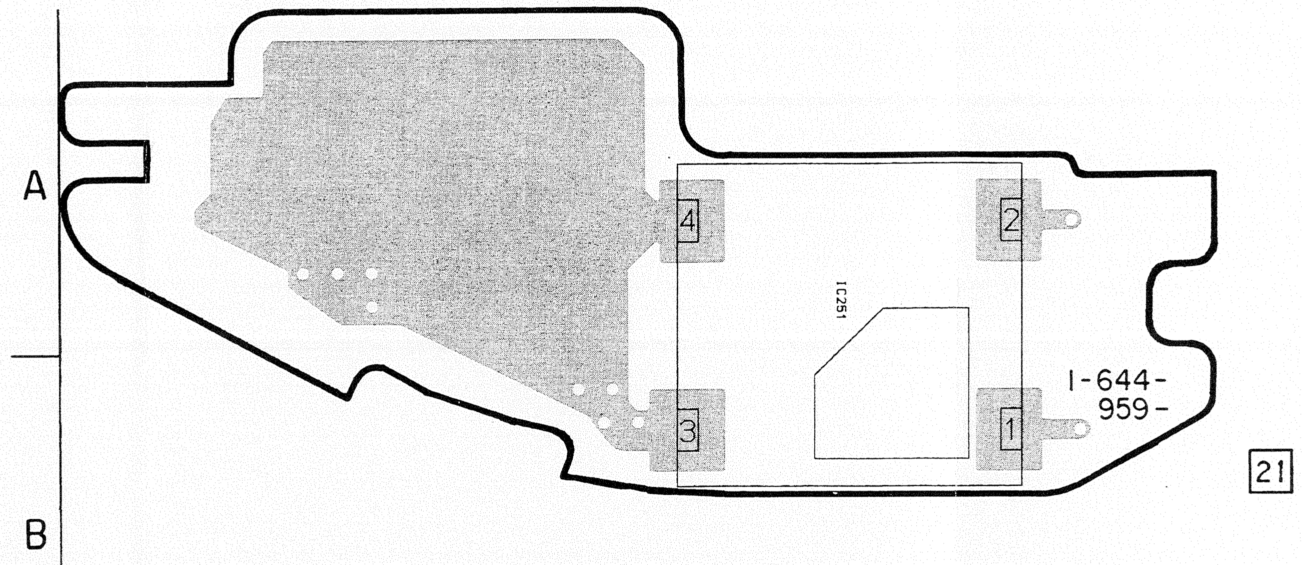
RE-22 BOARD (COMPONENT SIDE)


A
D201
1
3
IC201
2
4
1-644-958-
21
B

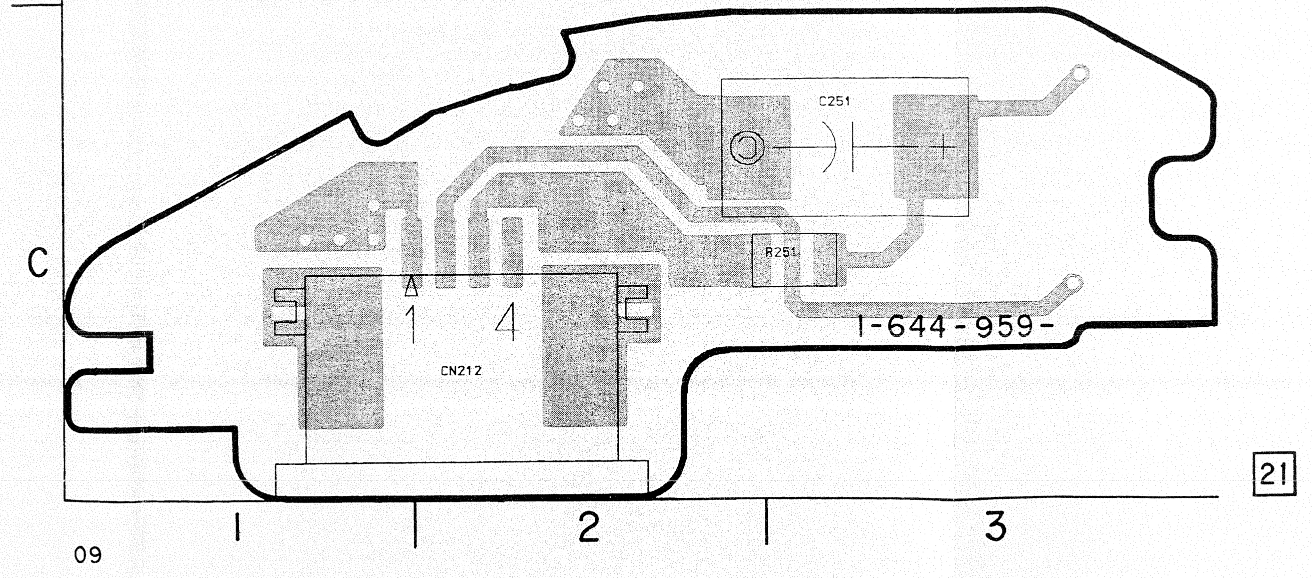
RE-22 BOARD (CONDUCTOR SIDE)


C201
R201
CN211
5
1
C
1-644-958-
21
1
2
3
09

RE-23 BOARD(COMPONENT SIDE)


A
4
2
IC251
3
1
1-644-
959-
21
B

RE-23 BOARD (CONDUCTOR SIDE)


C251
R251
C
1
4
CN212
1-644-959-
21
1
2
3
09

AU-146 (AFM AUDIO) PRINTED WIRING BOARD

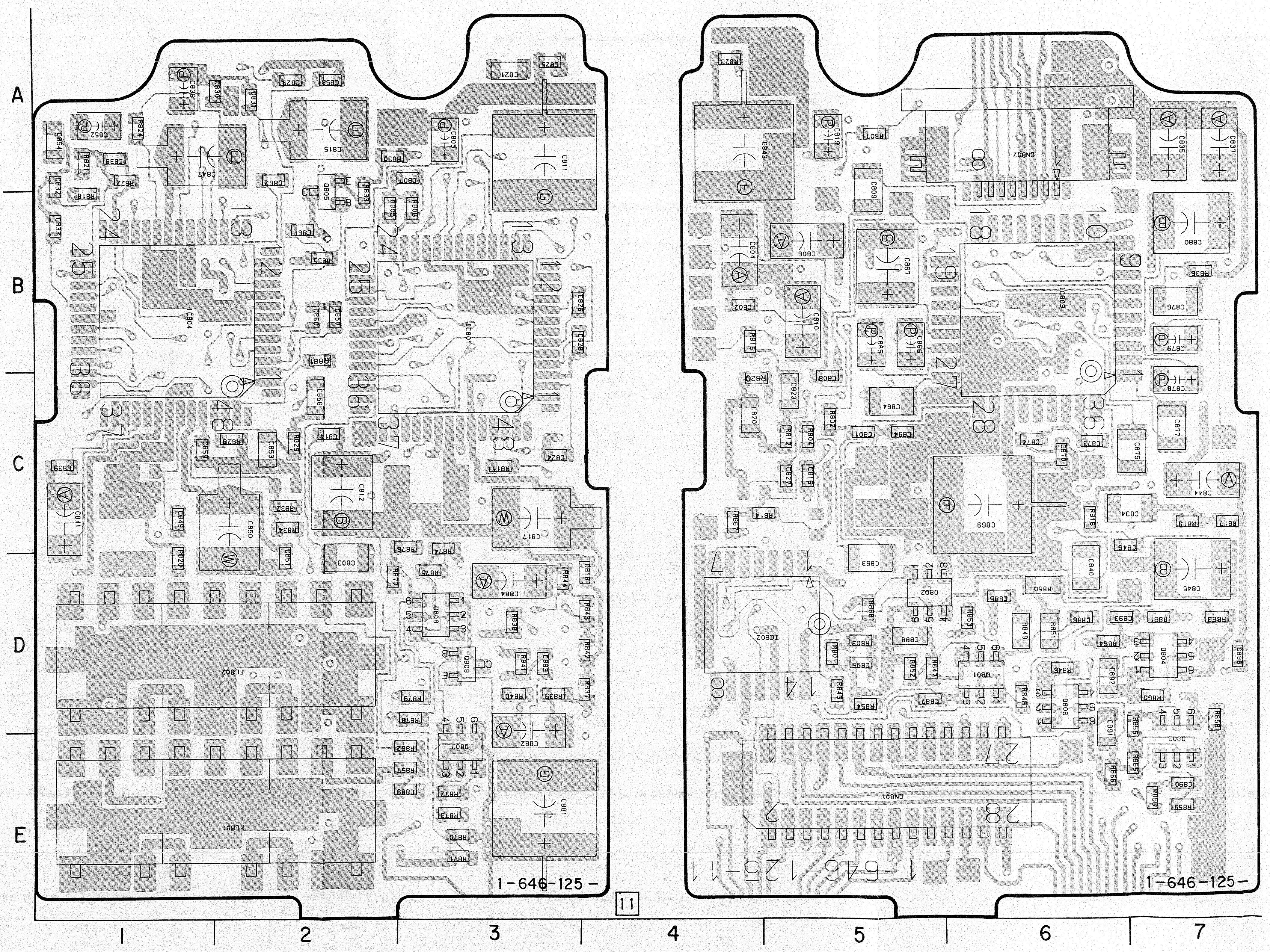
— Ref. No. AU-146 BOARD: 3000 series —

- Refer to page 157 for Schematic Diagram.

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

- **For printed wiring boards**
- AU-146 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

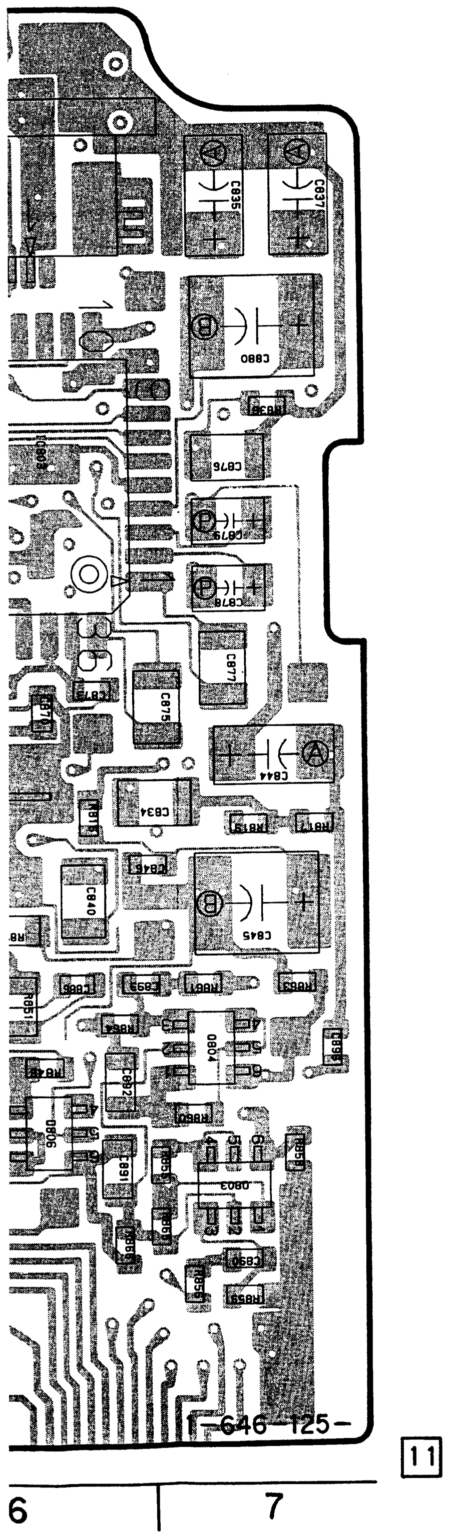


AU-146 BOARD (COMPONENT SIDE)

AU-146 BOARD (CONDUCTOR SIDE)

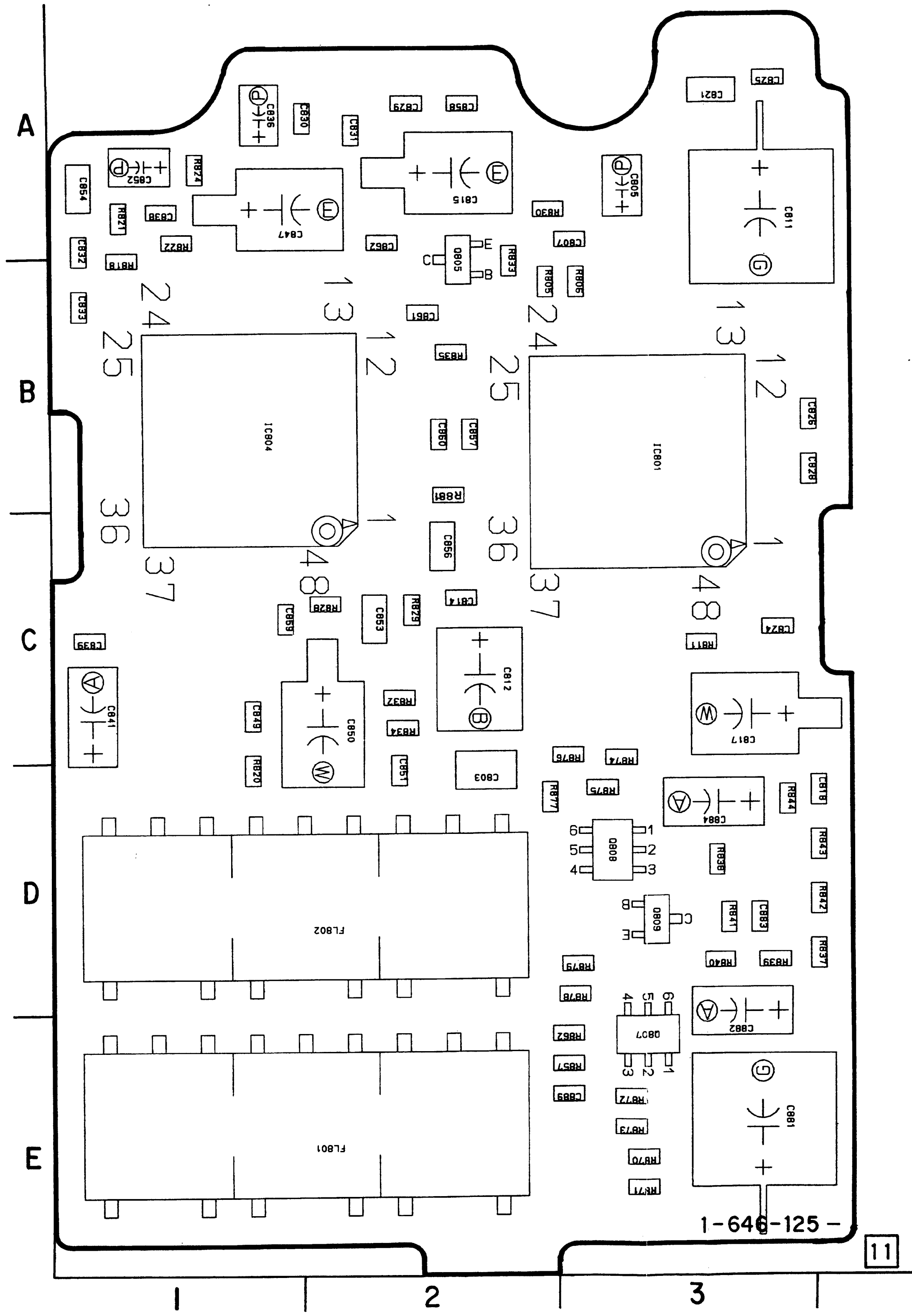
A
B
C
D
E
1
2
3
4
5
6
7
IC804
IC801
IC803
IC802
FL802
FL801
CN802
CN801
1-646-125 -
11
1-646-125-

R SIDE)



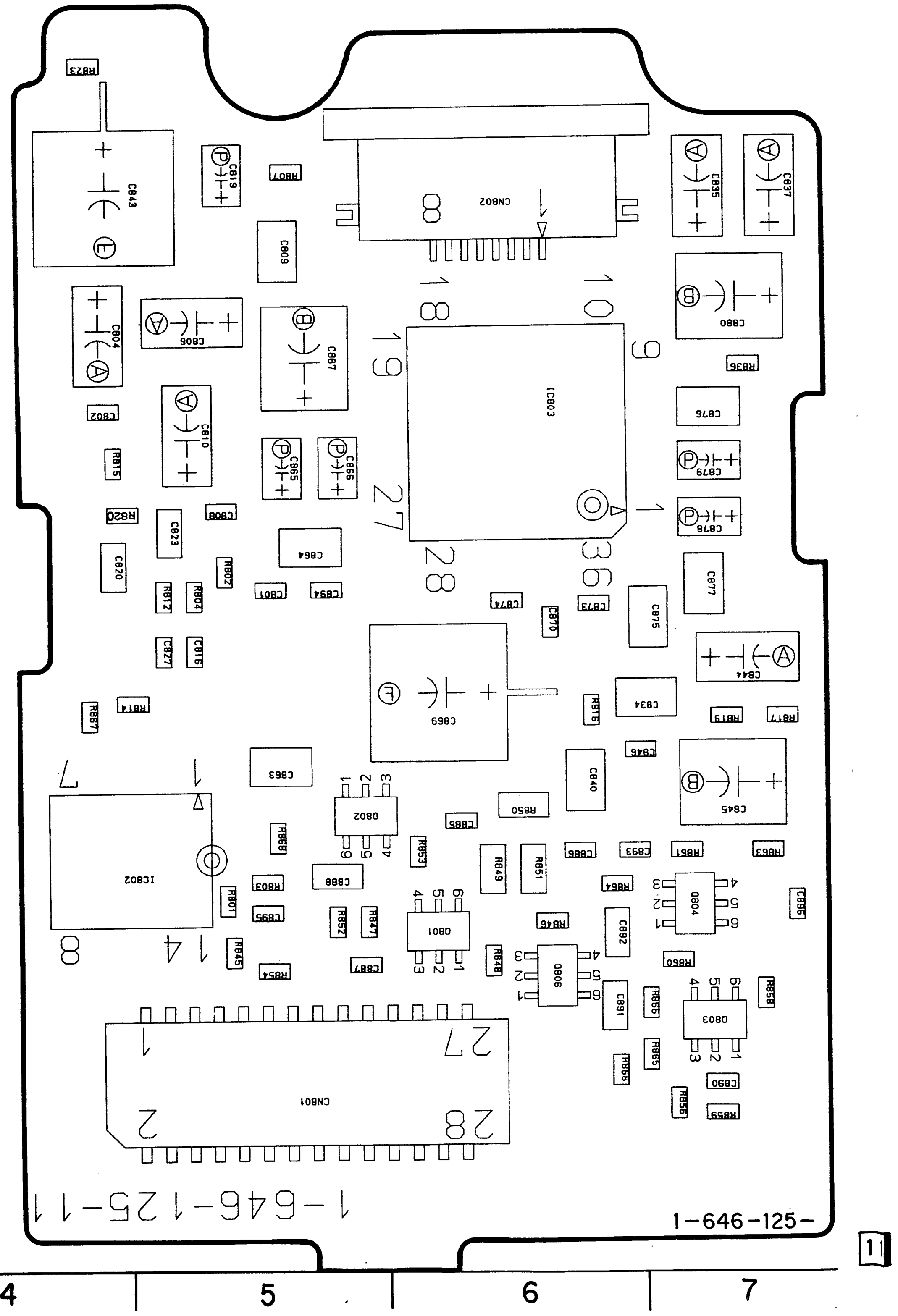
1-646-125-
11
6
7

AU-146 BOARD (COMPONENT SIDE)



A
B
C
D
E
IC804
IC801
FL802
FL801
1-646-125 -
11
1
2
3

AU-146 BOARD (CONDUCTOR SIDE)



CN802
IC803
IC802
CN801
1-646-125-11
1-646-125 -
11
4
5
6
7

MA-164 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-164 BOARD: 5000 series —

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

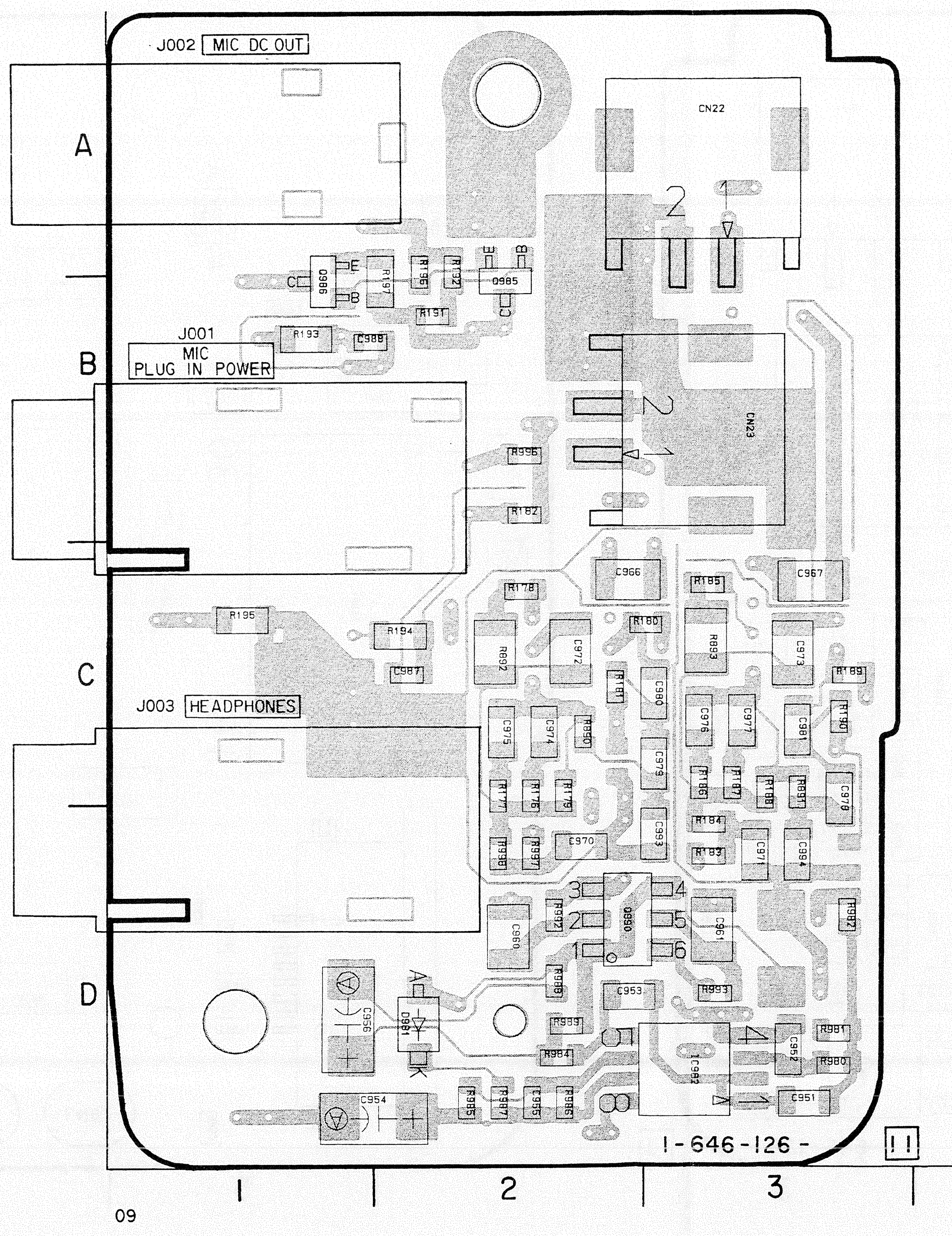
- **For printed wiring boards**
- MA-164 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:

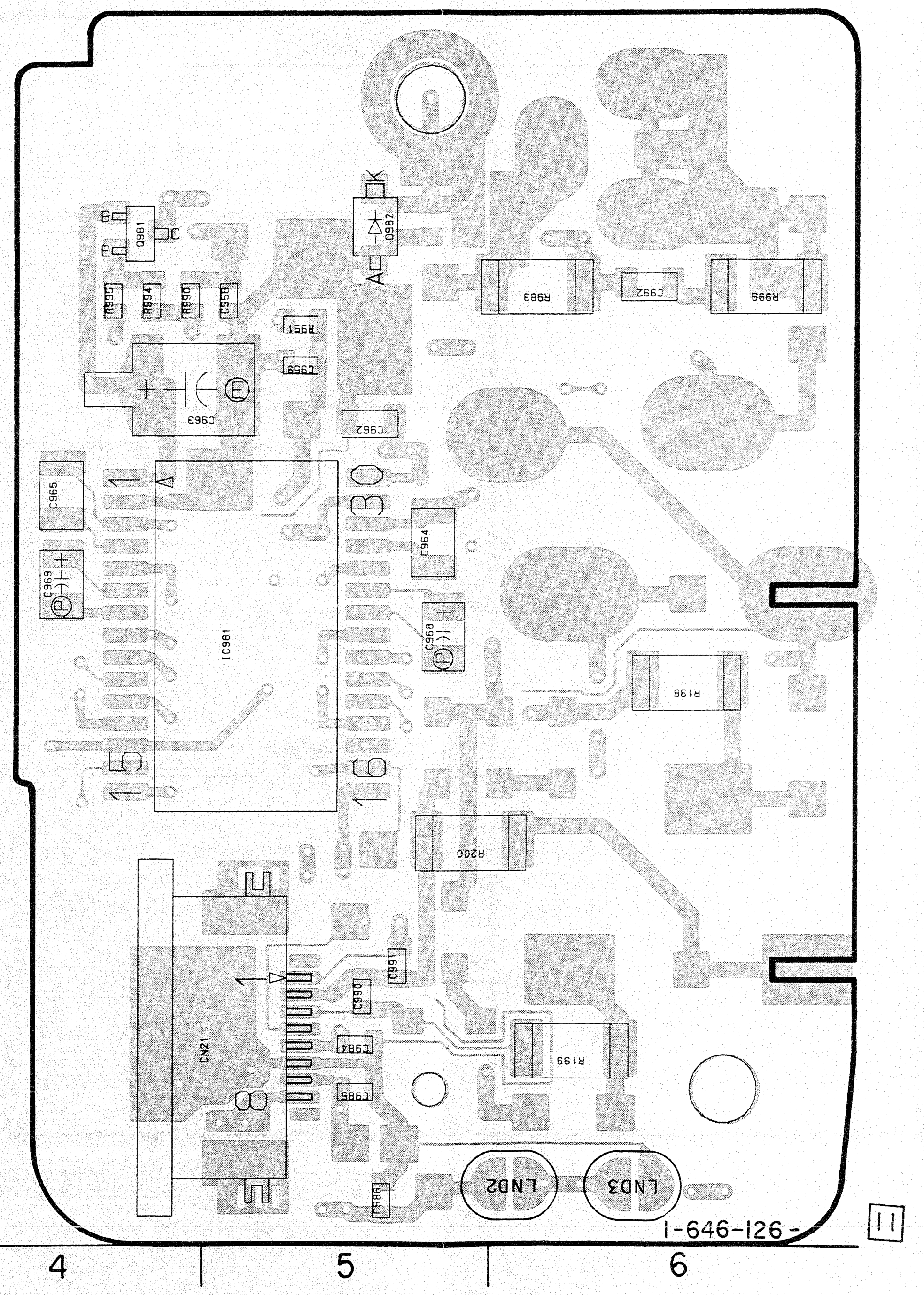
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

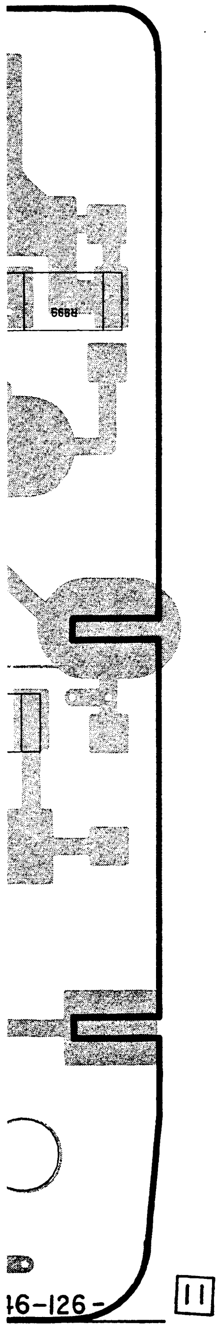
- Refer to page 157 for Schematic Diagram.

MA-164 BOARD (COMPONENT SIDE)


J002 MIC DC OUT
A
CN22
B
J001 MIC PLUG IN POWER
CN23
C
J003 HEADPHONES
IC950
D
D981
C956
C954
IC952
1-646-126-
11
1
2
3
09

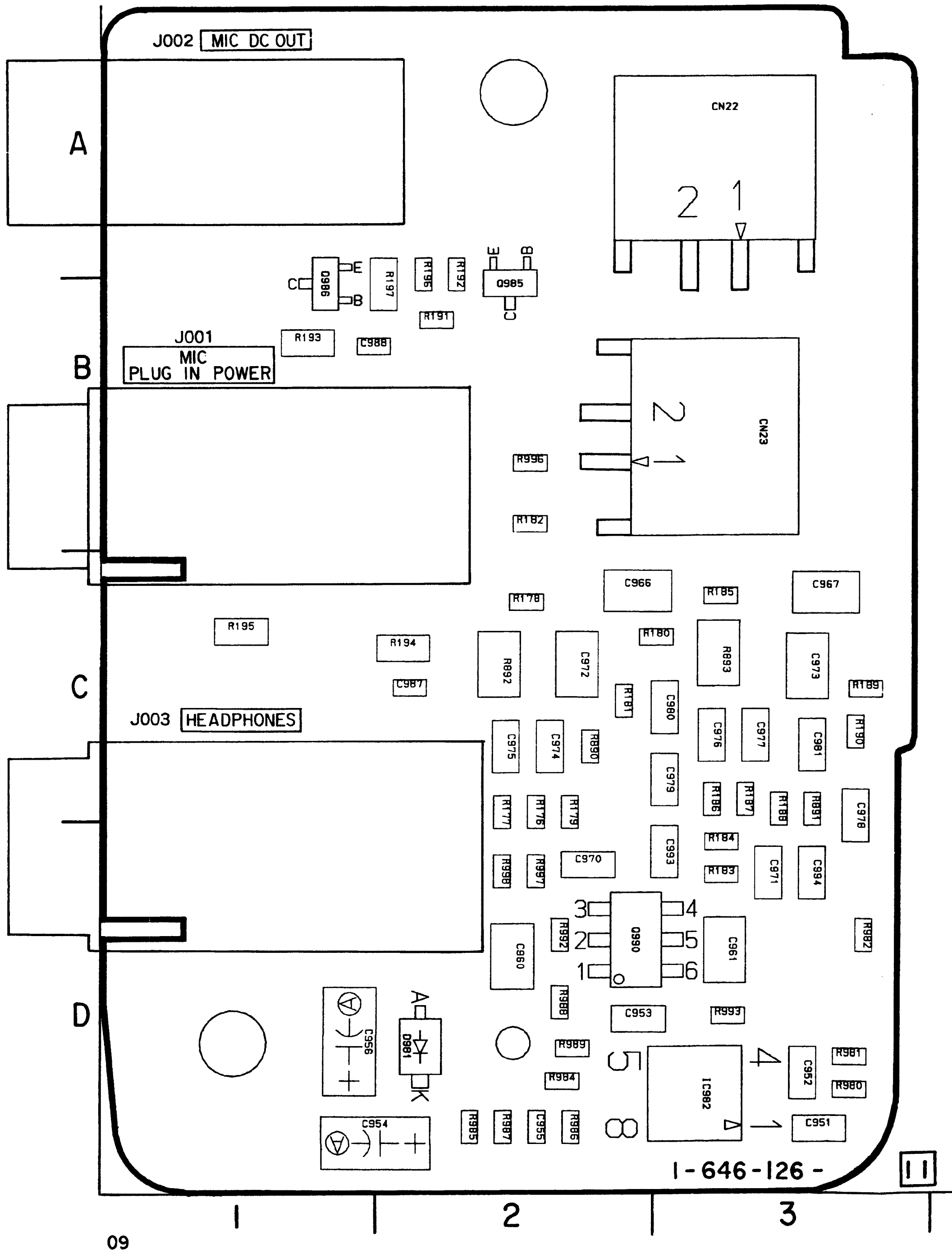
MA-164 BOARD (CONDUCTOR SIDE)


Q981
D982
IC981
R199
R200
CN21
LND2
LND3
1-646-126-
11
4
5
6



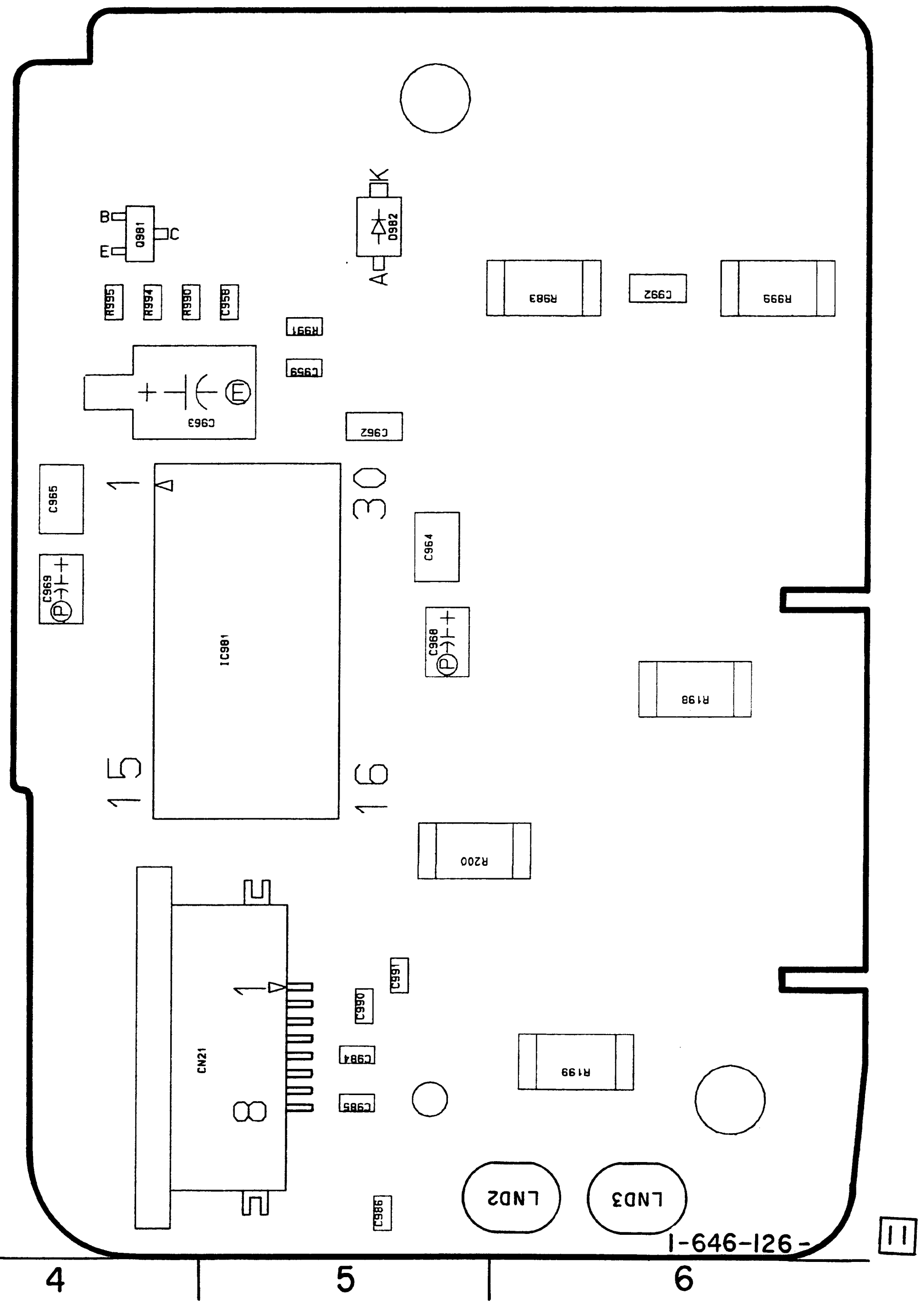
R899
46-126-
11

MA-164 BOARD (COMPONENT SIDE)



J002 MIC DC OUT
A
B
C
D
J001 MIC PLUG IN POWER
J003 HEADPHONES
CN22
CN23
Q986
Q985
Q990
IC982
D981
C956
C954
R197
R196
R192
R191
R193
C988
R996
R182
R178
R195
R194
C987
R892
C972
C966
R185
R180
R893
C967
C973
R189
R181
C980
C976
C977
C981
R190
C975
C974
R890
C979
R186
R187
R188
R891
C978
R177
R176
R179
R184
R183
C970
C993
C971
C984
R998
R997
C980
R992
C961
R982
R988
C953
R993
R989
R984
C952
R981
R980
C951
R985
R987
C955
R986
1-646-126-
11
1
2
3
09

MA-164 BOARD (CONDUCTOR SIDE)



Q981
D982
R955
R954
R956
C953
R951
C969
C963
R983
C992
R999
C962
C965
C959
IC981
C964
C968
R198
R200
CN21
C991
C983
C984
C985
R199
C986
LND2
LND3
1-646-126-
11
4
5
6

EZ-3 (EASY CONNECTOR, CHARGING CONTROL) PRINTED WIRING BOAR

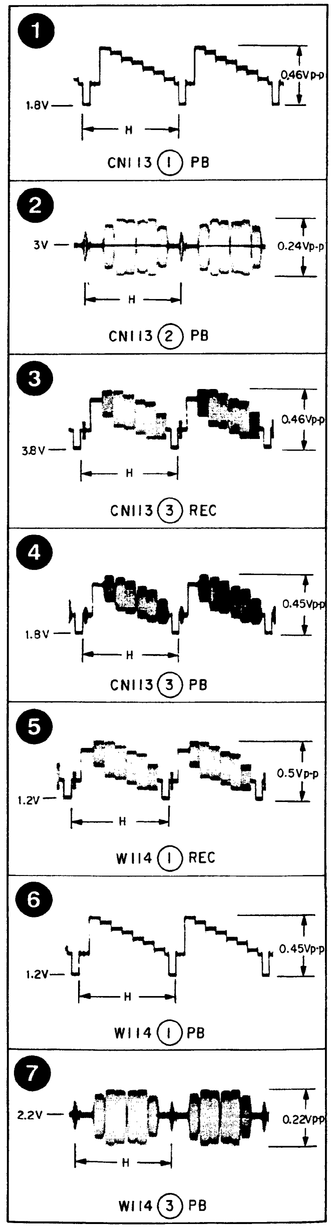
— Ref. No. EZ-3 BOARD: 3000 series —

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

- **For printed wiring boards**
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

EZ-3 BOARD

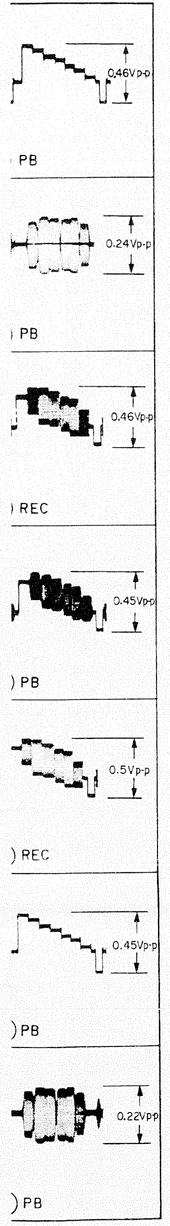


CONTROL) PRINTED WIRING BOARD

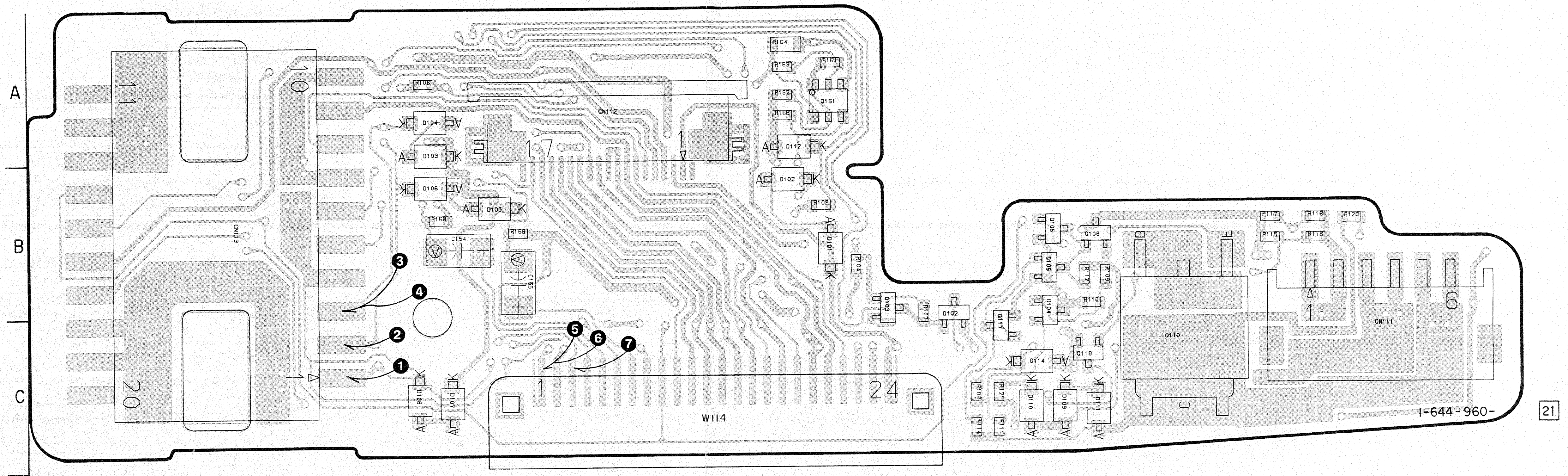
- Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Board on the MA-164 board.

here PRINTED

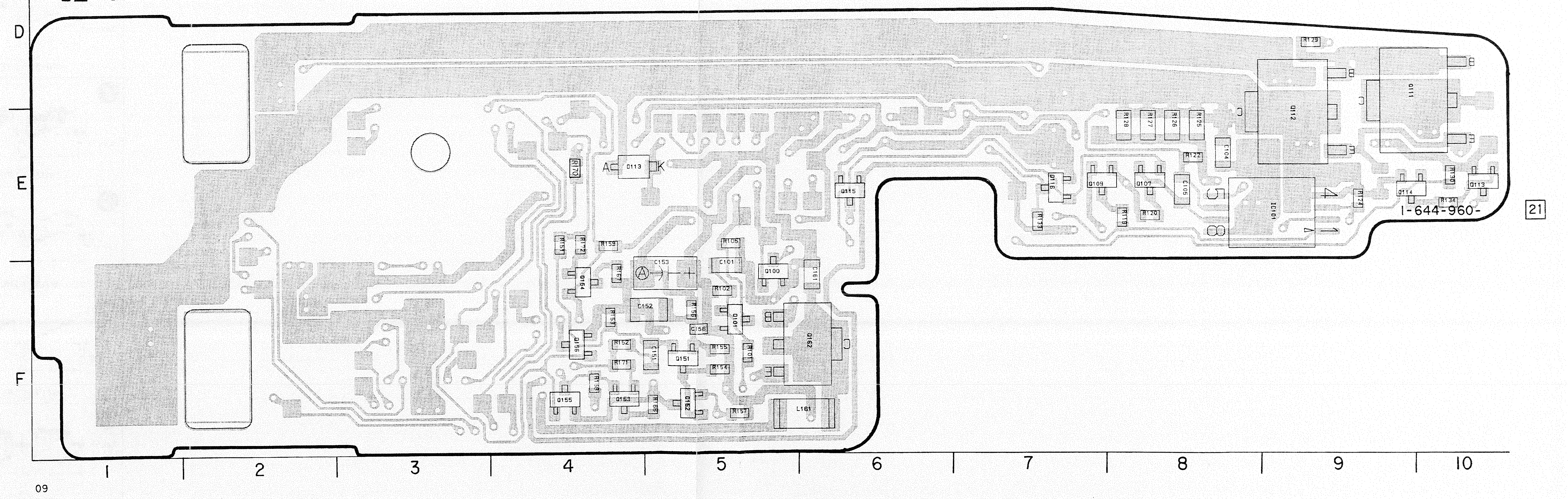
ide seen from
d.
seen from the



EZ-3 BOARD(COMPONENT SIDE)


A
B
C
CN112
CN113
CN111
W114
1
24
11
10
20
1-644-960-
21

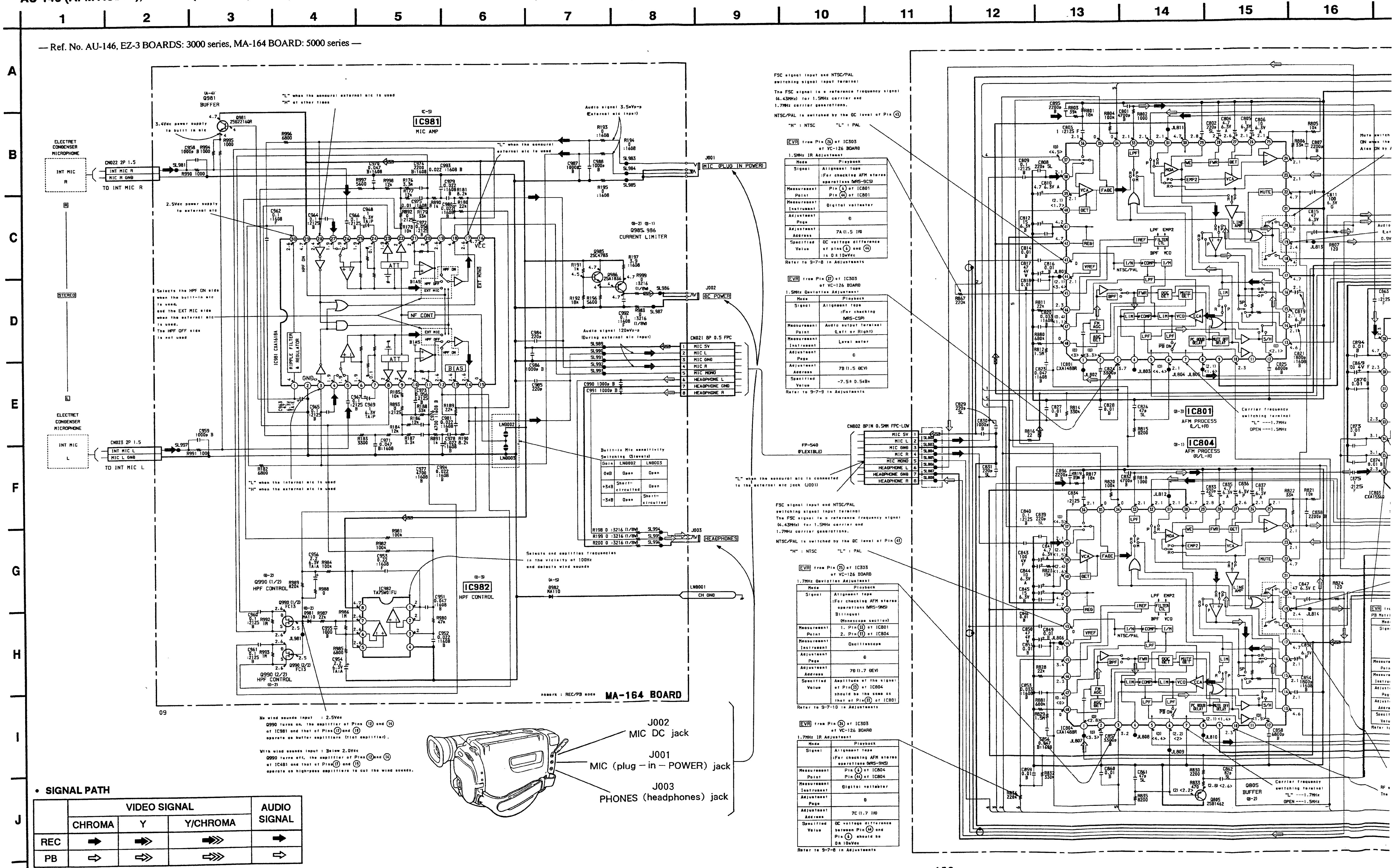
EZ-3 BOARD(CONDUCTOR SIDE)


D
E
F
1
2
3
4
5
6
7
8
9
10
09
IC101
L161
1-644-960-
21

AU-146 (AFM AUDIO), MA-164 (MIC AMP), EZ-3 (EASY CONNECTOR, CHARGING CONTROL), JACK BOARD (VIDEO, AUDIO OUT) SCHEMATIC DIAGRAMS

• Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Boa

— Ref. No. AU-146, EZ-3 BOARDS: 3000 series, MA-164 BOARD: 5000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
ELECTRET CONDENSER MICROPHONE
INT MIC R
CN022 2P 1.5
INT MIC R
MIC R GND
TO INT MIC R
STEREO
ELECTRET CONDENSER MICROPHONE
INT MIC L
CN023 2P 1.5
INT MIC L
MIC L GND
TO INT MIC L
Q981 BUFFER
3.4Vdc power supply to built-in mic
2.5Vdc power supply to external mic
IC981 MIC AMP
"L" when the monaural external mic is used
"H" at other times
"L" when the internal mic is used
"H" when the external mic is used
Selects the HPF ON side when the built-in mic is used, and the EXT MIC side when the external mic is used.
The HPF OFF side is not used
IC981 CXA1618A
RIPPLE FILTER & REGULATOR
ATT
BIAS
NF CONT
EXT MIC
HPF ON
EXT MONO
VCC
GND
Audio signal 3.5mVp-p (External mic input)
J001
MIC (PLUG IN POWER)
Q985, 986 CURRENT LIMITER
J002
DC POWER
Audio signal 120mVp-p (During external mic input)
CN021 8P 0.5 FPC
1 MIC 5V
2 MIC L
3 MIC GND
4 MIC R
5 MIC MONO
6 HEADPHONE L
7 HEADPHONE GND
8 HEADPHONE R
LN0002
LN0003
Built-in Mic sensitivity Switching (3levels)
R198 0 :3216 (1/8W)
R199 0 :3216 (1/8W)
R200 0 :3216 (1/8W)
SL994
SL995
SL996
J003
HEADPHONES
Selects and amplifies frequencies in the vicinity of 100Hz and detects wind sounds
IC982 HPF CONTROL
IC982 TA75W01FU
Q990 (1/2) HPF CONTROL
Q990 (2/2) HPF CONTROL
Q982 MA110
LN0001
CH GND
MA-164 BOARD
09
J002
MIC DC jack
J001
MIC (plug – in – POWER) jack
J003
PHONES (headphones) jack
"L" when the monaural mic is connected to the external mic jack (J001)
FP-540 (FLEXIBLE)
CN802 8PIN 0.5MM FPC-LOW
MIC 5V
MIC L
MIC GND
MIC R
MIC MONO
HEADPHONE L
HEADPHONE GND
HEADPHONE R
IC801 AFM PROCESS (L/L+R)
IC804 AFM PROCESS (R/L-R)
IC801 CXA1488R
IC804 CXA1488R
LPF
EMP2
BPF
VCO
I/H
COMP
NTSC/PAL
REG
VREF
FADE
VCA
MUTE
LINE AMP
DET
AGC
PB ON
Carrier frequency switching terminal
"L" ---1.7MHz
OPEN ---1.5MHz
Q805 BUFFER
Mute switch

FSC signal input and NTSC/PAL switching signal input terminal

The FSC signal is a reference frequency signal (4.43MHz) for 1.5MHz carrier and 1.7MHz carrier generations.

NTSC/PAL is switched by the DC level of Pin ㊸

"H" : NTSC "L" : PAL

EVR from Pin ㉖ of IC303 of VC-126 BOARD

1.5MHz IR Adjustment

Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9CS)
Measurement Point	Pin ⑥ of IC801 Pin ㊹ of IC801
Measurement Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR)
Specified Value	DC voltage difference of pins ⑥ and ㊹ is 0 ± 10mVdc

Refer to 9-7-8 in Adjustments

EVR from Pin ㉗ of IC303 of VC-126 BOARD

1.5MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape :For checking (WR5-CSP)
Measurement Point	Audio output terminal (Left or Right)
Measurement Instrument	Level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5± 0.5dBs

Refer to 9-7-9 in Adjustments

Built-in Mic sensitivity Switching (3levels)

Gain	LN0002	LN0003
0dB	Open	Open
+3dB	Short-circuited	Open
-3dB	Open	Short-circuited

FSC signal input and NTSC/PAL switching signal input terminal

The FSC signal is a reference frequency signal (4.43MHz) for 1.5MHz carrier and 1.7MHz carrier generations.

NTSC/PAL is switched by the DC level of Pin ㊸

"H" : NTSC "L" : PAL

EVR from Pin ㉕ of IC303 of VC-126 BOARD

1.7MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9NS) Bilingual (Monoscope section)
Measurement Point	1. Pin ㉝ of IC801 2. Pin ㉝ of IC804
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1.7 DEV)
Specified Value	Amplitude of the signal of Pin ㉝ of IC804 should be the same as that of Pin ㉝ of IC801

Refer to 9-7-10 in Adjustments

EVR from Pin ㉔ of IC303 of VC-126 BOARD

1.7MHz IR Adjustment

Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9NS)
Measurement Point	Pin ⑥ of IC804 Pin ㊹ of IC804
Measurement Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7C (1.7 IR)
Specified Value	DC voltage difference between Pin ㊹ and Pin ⑥ should be 0± 10mVdc

Refer to 9-7-8 in Adjustments

No wind sounds input : 2.5Vdc
Q990 turns on, the amplifier of Pins ⑫ and ⑭ of IC981 and that of Pins ⑰ and ⑲ operate as buffer amplifiers (flat amplifier).

With wind sounds input : Below 2.0Vdc
Q990 turns off, the amplifier of Pins ⑫ and ⑭ of IC481 and that of Pins ⑰ and ⑲ operate as high-pass amplifiers to cut the wind sounds.

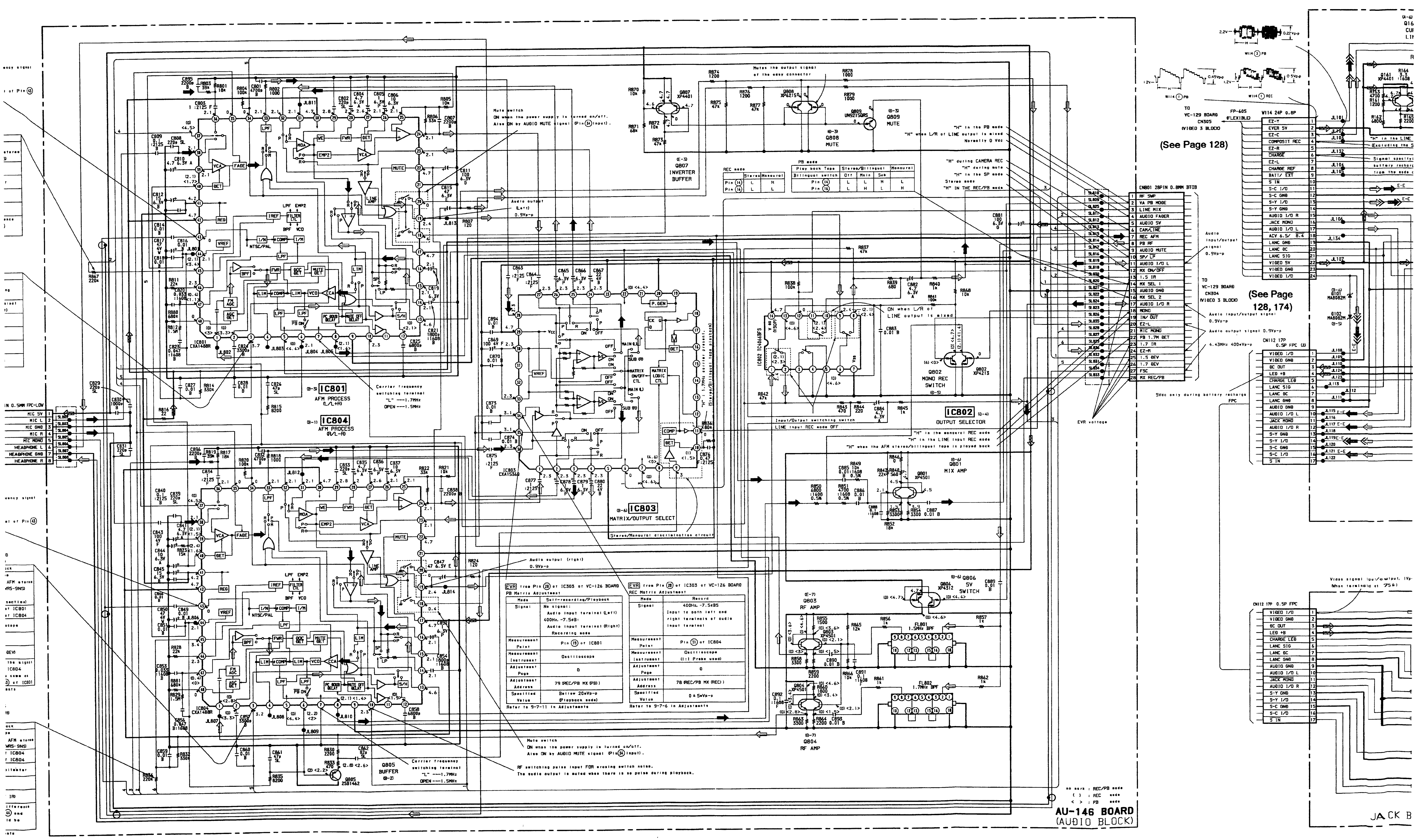
remark : REC/PB mode

• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

- Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Board on the MA-164 board.

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27


IC801
AFM PROCESS
(L/L+R)
IC804
AFM PROCESS
(R/L-R)
IC803
MATRIX/OUTPUT SELECT
IC802
OUTPUT SELECTOR
Q801
MIX AMP
Q802
MONO REC
SWITCH
Q803
RF AMP
Q804
RF AMP
Q805
BUFFER
Q806
5V
SWITCH
Q807
INVERTER
BUFFER
Q808
MUTE
Q809
MUTE
Mutes the output signal
of the easy connector
Mute switch
ON when the power supply is turned on/off.
Also ON by AUDIO MUTE signal (Pin ㉞ input).
Carrier frequency
switching terminal
"L" ---1.7MHz
OPEN---1.5MHz
Audio output (right)
0.9Vp-p
Stereo/Monaural discrimination circuit
Input/Output switching switch
LINE input REC mode OFF
ON when L/R of
LINE output is mixed
"H" in the PB mode
"H" when L/R of LINE output is mixed
Normally 0 Vdc
"H" during CAMERA REC
"H" during mute
"H" in the SP mode
Stereo mode
"H" IN THE REC/PB mode
"H" in the monaural REC mode
"H" in the LINE input REC mode
"H" when the AFM stereo/bilingual tape is played back
RF switching pulse input FOR erasing switch noise.
The audio output is muted when there is no pulse during playback.
CN801 28PIN 0.8MM BTOB
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/LP
11 AUDIO I/O L
12 MX ON/OFF
13 1.5 IR
14 MX SEL 1
15 AUDIO GND
16 MX SEL 2
17 AUDIO I/O R
18 MONO
19 IN/OUT
20 EZ-L
21 MIC MONO
22 PB 1.7M DET
23 1.7 IR
24 EZ-R
25 1.5 DEV
26 1.7 DEV
27 FSC
28 MX REC/PB
Audio input/output signal 0.9Vp-p
Audio output signal 0.9Vp-p
4.43MHz 400mVp-p
TO
VC-129 BOARD
CN304
(VIDEO 3 BLOCK)
(See Page 128, 174)
TO
VC-129 BOARD
CN305
(VIDEO 3 BLOCK)
(See Page 128)
5Vdc only during battery recharge
FPC
EVR voltage
IN 0.5MM FPC-LOW
MIC 5V
MIC L
MIC GND
MIC R
MIC MONO
HEADPHONE L
HEADPHONE GND
HEADPHONE R
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
AU-146 BOARD
(AUDIO BLOCK)
JACK B

REC mode

	Stereo	Monaural
Pin ⑭	L	H
Pin ⑯	L	L

PB mode

Play back Tape	Stereo/Bilingual			Monaural
Bilingual switch	Off	Main	Sub	
Pin ⑭	L	L	H	L
Pin ⑯	L	H	L	H

EVR from Pin ㉘ of IC303 of VC-126 BOARD
PB Matrix Adjustment

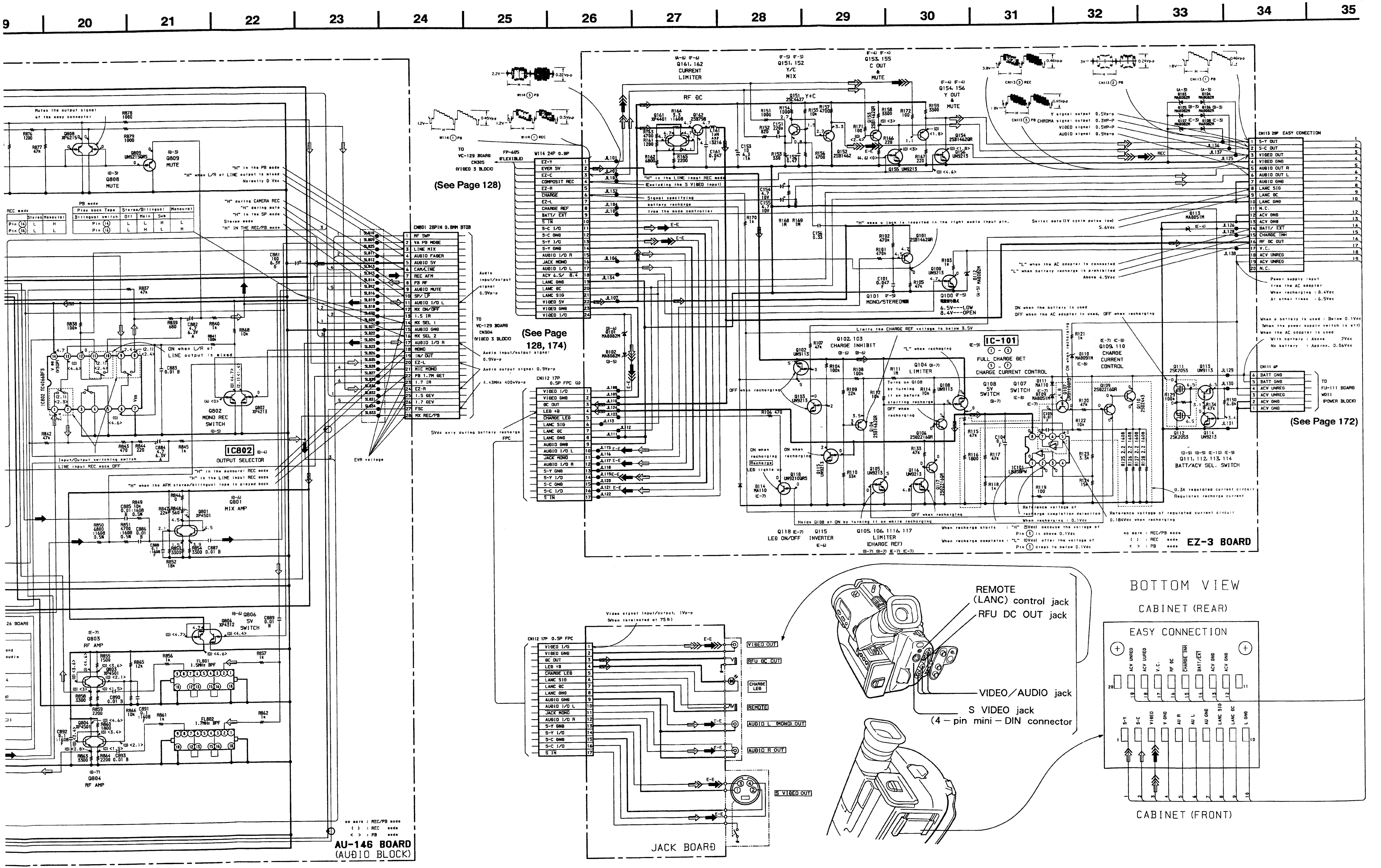
Mode	Self-recording/Playback
Signal	No signal: Audio input terminal (Left) 400Hz. -7.5dB: Audio input terminal (Right) Recording mode
Measurement Point	Pin ⑲ of IC801
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	79 (REC/PB MX (PB))
Specified Value	Bellow 20mVp-p (Playback mode)

Refer to 9-7-11 in Adjustments

EVR from Pin ㉘ of IC303 of VC-126 BOARD
REC Matrix Adjustment

Mode	Record
Signal	400Hz. -7.5dBS Input to both left and right terminals of audio input terminal
Measurement Point	Pin ㉛ of IC804
Measurement Instrument	Oscilloscope (1:1 Probe used)
Adjustment Page	D
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	0 ± 5mVp-p

Refer to 9-7-6 in Adjustments


9
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
AU-146 BOARD
(AUDIO BLOCK)
IC802
OUTPUT SELECTOR
Q802
MONO REC
SWITCH
Q808
MUTE
Q809
MUTE
Q801
MIX AMP
Q803
RF AMP
Q804
RF AMP
Q806
5V
SWITCH
CN801 28PIN 0.8MM BTOB
EVR voltage
(See Page 128)
TO
VC-129 BOARD
CN305
(VIDEO 3 BLOCK)
FP-605
(FLEXIBLE)
W114 24P 0.8P
(See Page
128, 174)
TO
VC-129 BOARD
CN304
(VIDEO 3 BLOCK)
CN112 17P
0.5P FPC
FPC
Q161, 162
CURRENT
LIMITER
Q151, 152
Y/C
MIX
Q153, 155
C OUT
&
MUTE
Q154, 156
Y OUT
&
MUTE
RF DC
Q101
MONO/STEREO
Q100
6.5V---LOW
8.4V---OPEN
Q102, 103
CHARGE INHIBIT
IC-101
FULL CHARGE DET
CHARGE CURRENT CONTROL
Q104
LIMITER
Q108
5V
SWITCH
Q107
SWITCH
Q109, 110
CHARGE
CURRENT
CONTROL
Q111, 112, 113, 114
BATT/ACV SEL. SWITCH
Q118
LED ON/OFF
Q115
INVERTER
Q105, 106, 116, 117
LIMITER
(CHARGE REF)
CN113 20P EASY CONECTION
CN111 6P
TO
FU-111 BOARD
W011
(POWER BLOCK)
(See Page 172)
EZ-3 BOARD
JACK BOARD
VIDEO OUT
RFU DC OUT
CHARGE LED
REMOTE
AUDIO L (MONO) OUT
AUDIO R OUT
S VIDEO OUT
REMOTE
(LANC) control jack
RFU DC OUT jack
VIDEO/AUDIO jack
S VIDEO jack
(4 – pin mini – DIN connector)
BOTTOM VIEW
CABINET (REAR)
EASY CONNECTION
CABINET (FRONT)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode

VF-55 (CRT DRIVE), VF-56 (VIEW FINDER) PRINTED WIRING BOARDS

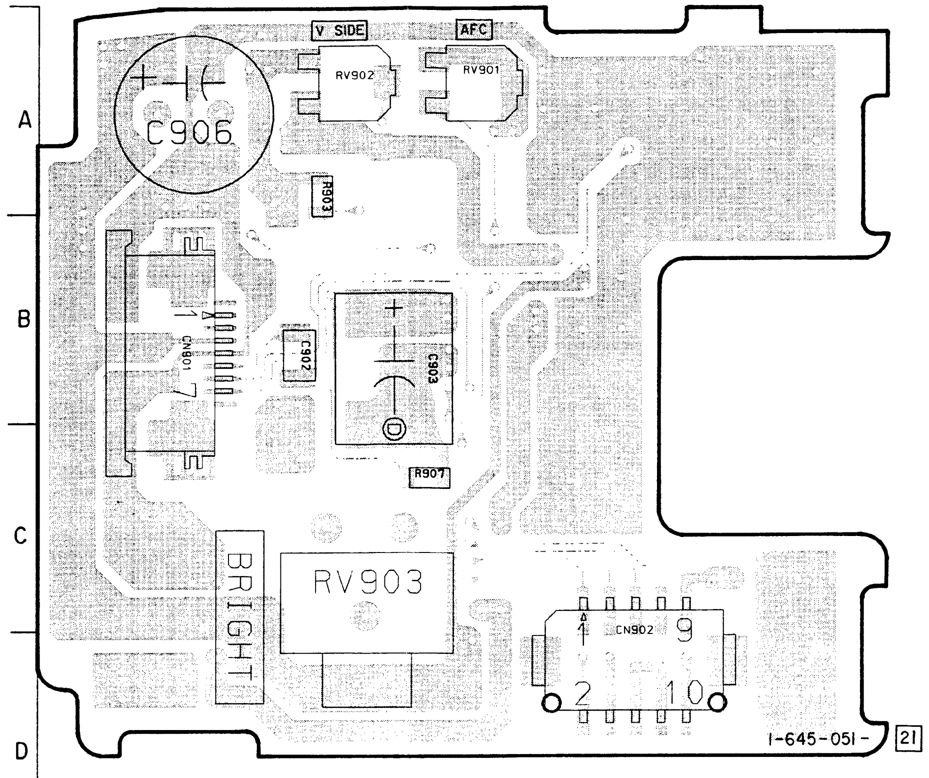
— Ref. No. VF-55 BOARD: 6000 series, VF-56 BOARD: 7000 series —

- **For printed wiring boards**

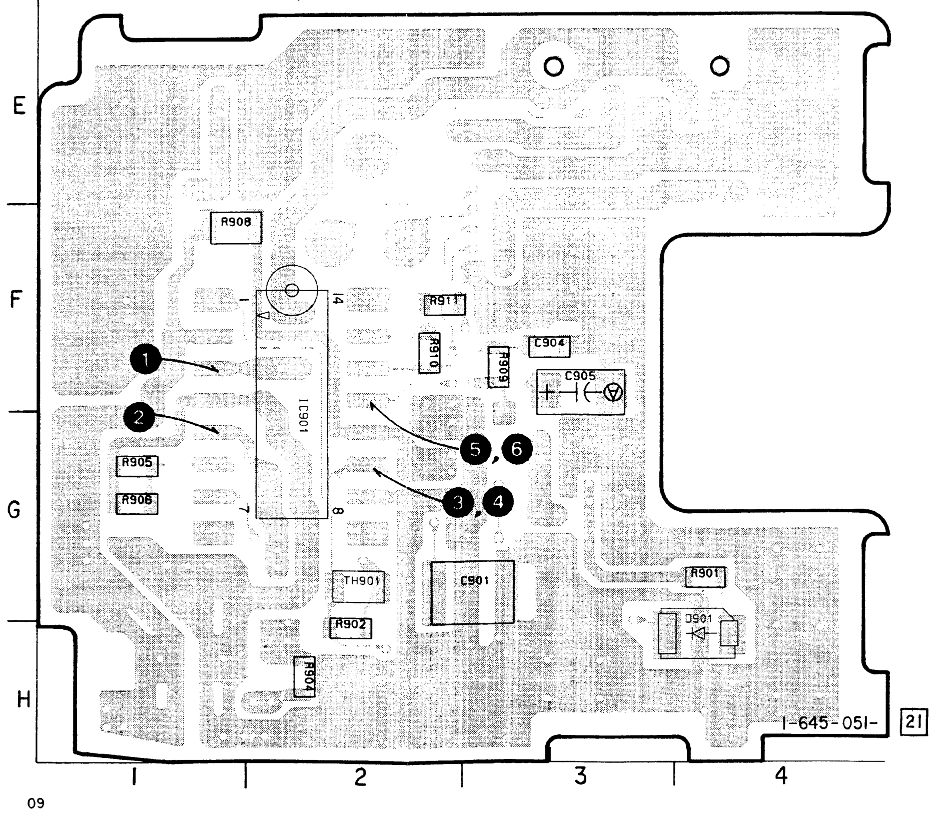
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: **(Conductor Side)**	**Parts on the pattern face side seen from the pattern face are indicated.**
Parts face side: **(Component side)**	**Parts on the parts face side seen from the parts face are indicated.**

VF-55 BOARD (COMPONENT SIDE)


V SIDE
AFC
RV902
RV901
C906
R903
CN901
1
7
C902
C903
R907
BRIGHT
RV903
CN902
1
9
2
10
1-645-051-
21
A
B
C
D

VF-55 BOARD (CONDUCTOR SIDE)


R908
IC901
14
1
7
8
R911
R910
R909
C904
C905
①
②
⑤,⑥
③,④
R905
R906
TH901
C901
R902
R904
R901
D901
1-645-051-
21
E
F
G
H
1
2
3
4
09

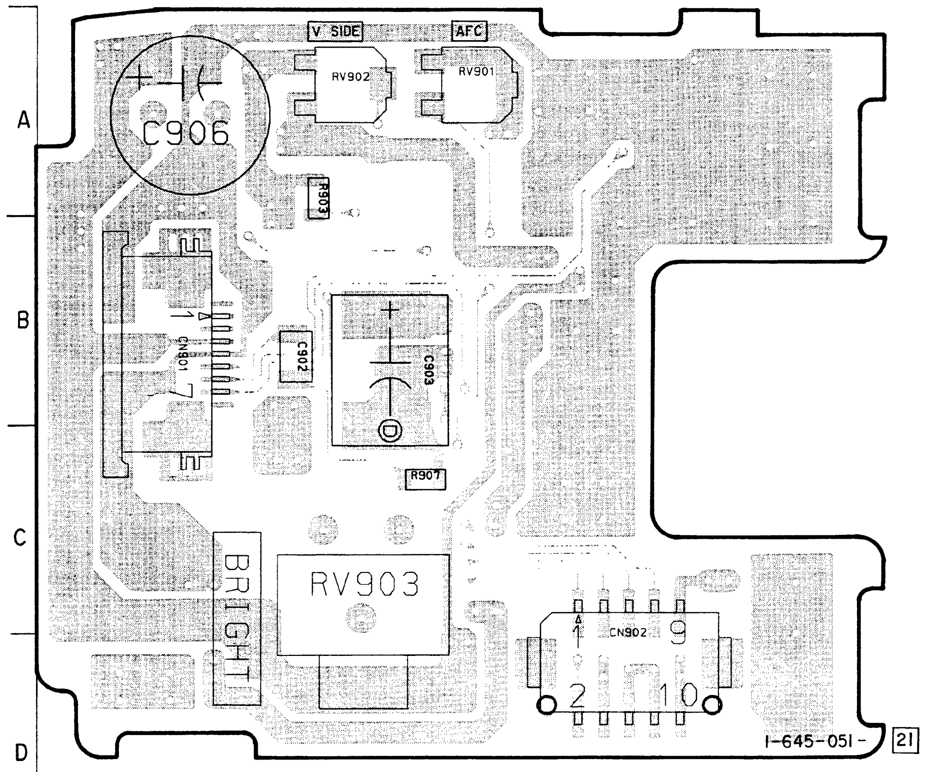
R) PRINTED WIRING BOARDS

7000 series —

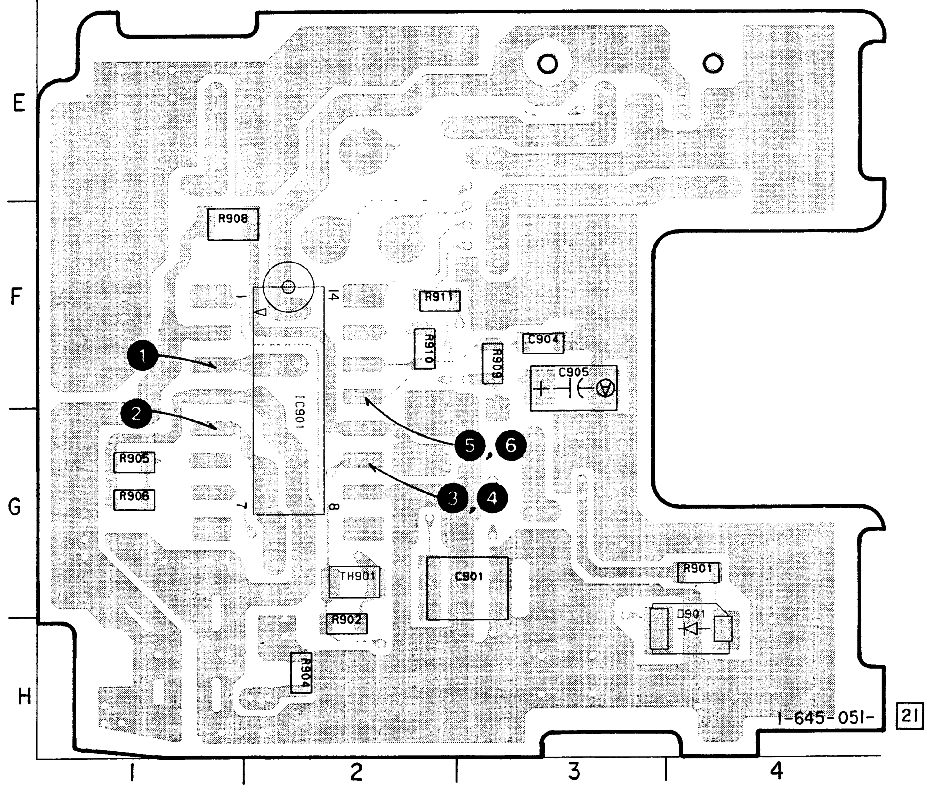
e seen from

een from the

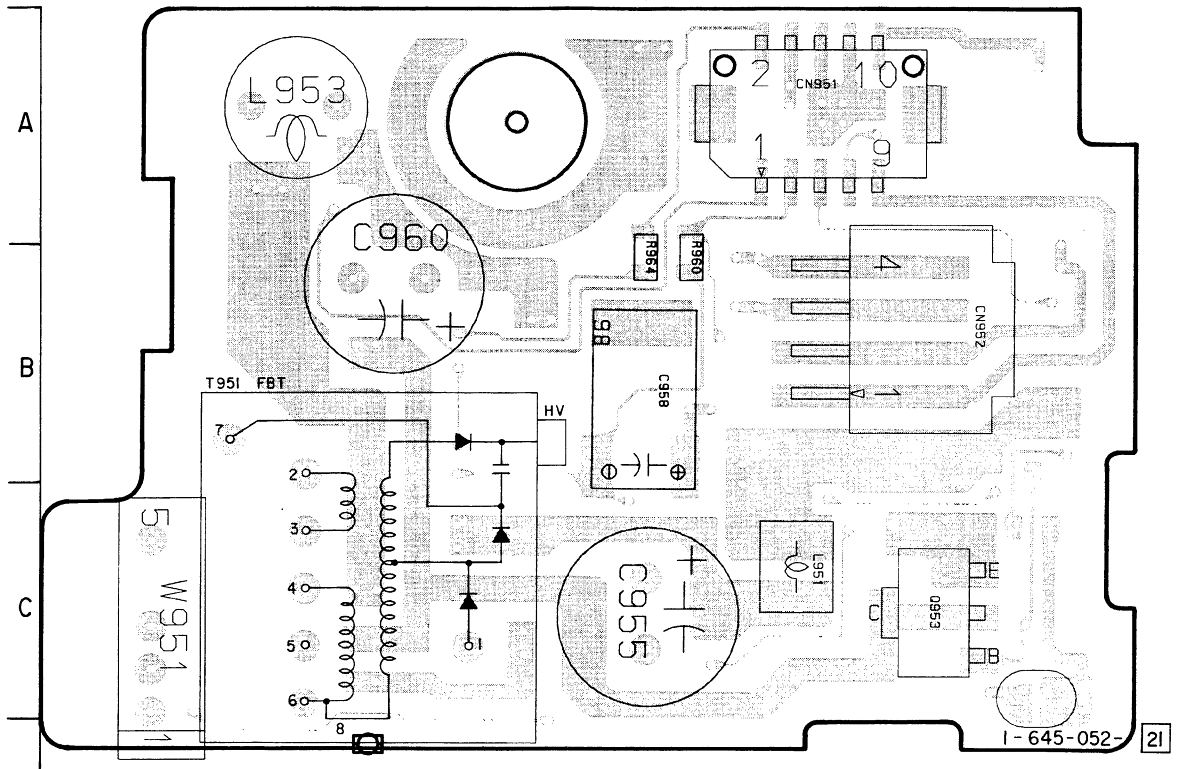
VF-55 BOARD (COMPONENT SIDE)


A
B
C
D
V SIDE
AFC
RV902
RV901
C906
R903
CN901
1
7
C902
C903
R907
BRIGHT
RV903
CN902
1
9
2
10
1-645-051-
21

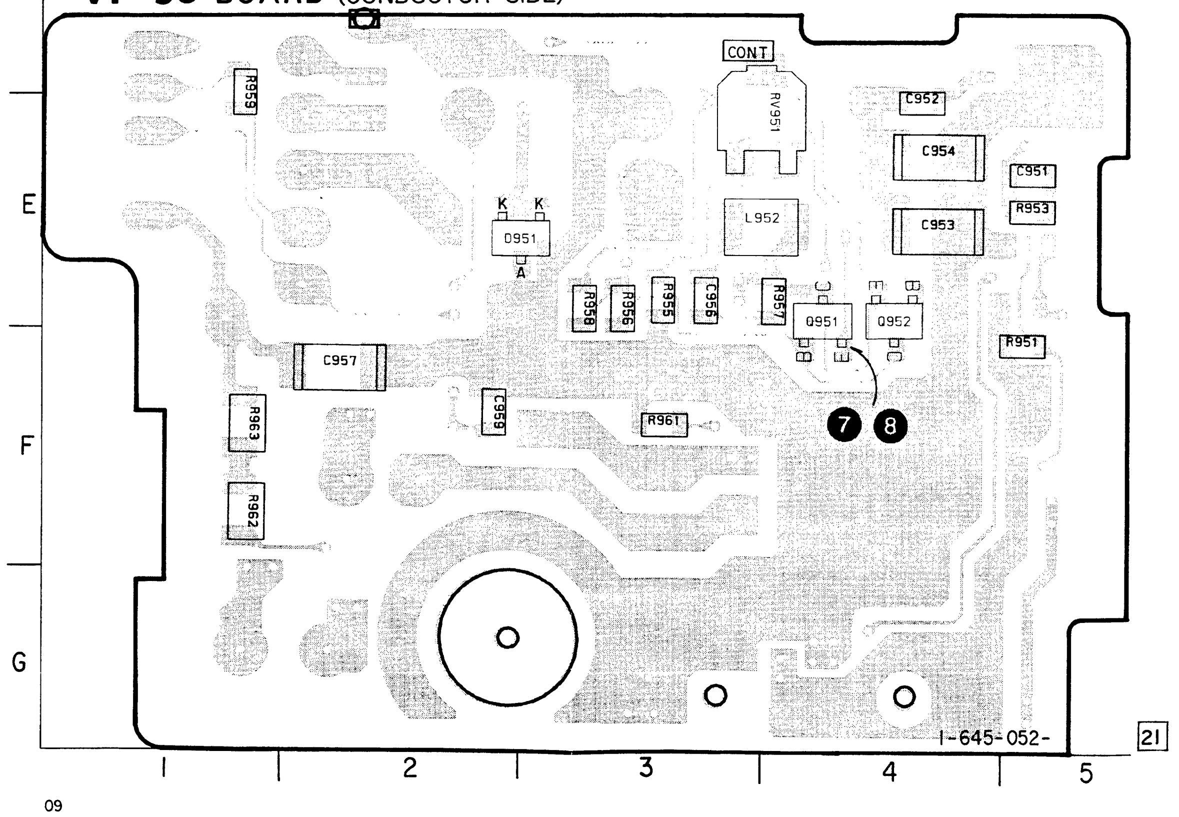
VF-55 BOARD (CONDUCTOR SIDE)


E
F
G
H
R908
IC901
1
14
7
8
R911
R910
C904
R909
C905
❶
❷
❸
❹
❺
❻
R905
R906
TH901
C901
R902
R904
R901
D901
1-645-051-
21
1
2
3
4
09

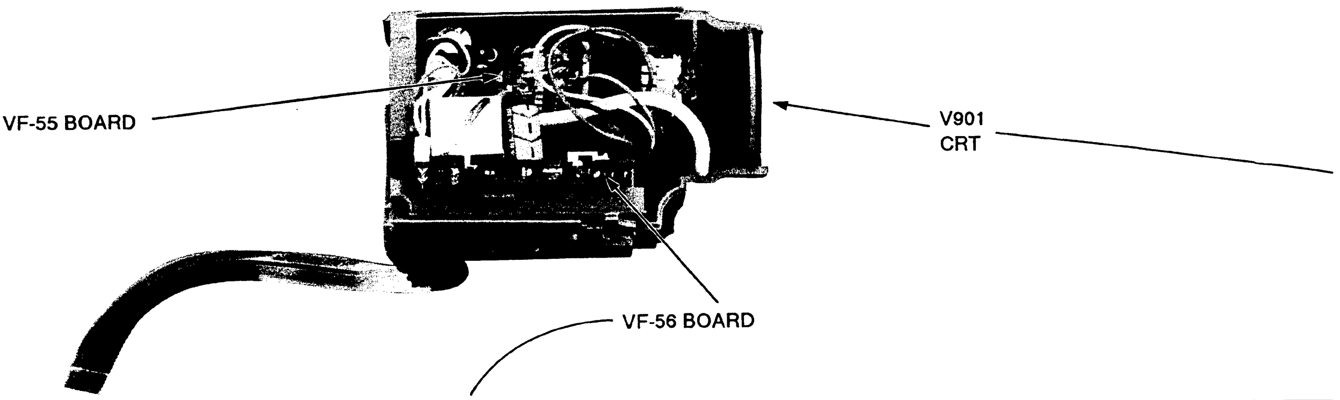
VF-56 BOARD (COMPONENT SIDE)

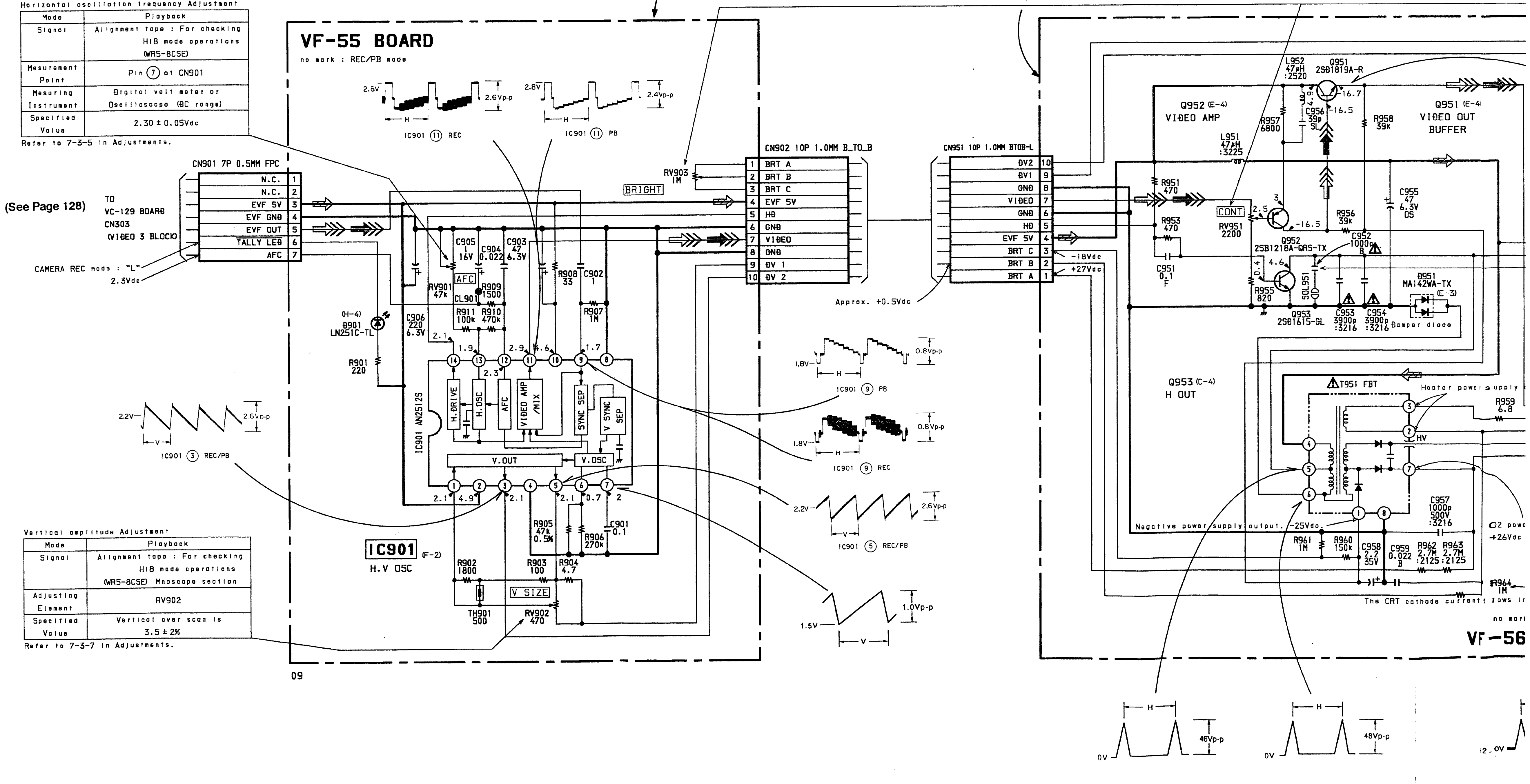

A
B
C
D
L953
CN951
2
10
1
9
C960
R964
R960
CN952
4
1
T951 FBT
HV
7
2
3
4
5
6
8
C958
W951
5
1
C955
L951
Q953
E
C
B
1-645-052-
21

VF-56 BOARD (CONDUCTOR SIDE)


E
F
G
CONT
RV951
R959
C952
C954
C951
R953
C953
L952
D951
K
K
A
R958
R956
R955
C956
R957
Q951
Q952
C
B
E
C957
C959
R961
R963
R962
R951
❼
❽
1-645-052-
21
1
2
3
4
5
09

— Ref. No. VF-55 BOARD: 6000 series, VF-56 BOARD: 7000 series —


VF-55 BOARD
V901
CRT
VF-56 BOARD


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VF-55 BOARD
no mark : REC/PB mode
2.6V
2.6Vp-p
IC901 ⑪ REC
2.8V
2.4Vp-p
IC901 ⑪ PB
H
CN901 7P 0.5MM FPC
N.C.
N.C.
EVF 5V
EVF GND
EVF OUT
TALLY LED
AFC
(See Page 128)
TO
VC-129 BOARD
CN303
(VIDEO 3 BLOCK)
CAMERA REC mode : "L"
2.3Vdc
RV903
1M
BRIGHT
CN902 10P 1.0MM B_TO_B
BRT A
BRT B
BRT C
EVF 5V
HD
GND
VIDEO
GND
DV 1
DV 2
C905
16V
C904
0.022
C903
47
6.3V
AFC
CL901
RV901
47k
R909
1500
R911
100k
R910
470k
R908
33
C902
1
R907
1M
(H-4)
D901
LN251C-TL
C906
220
6.3V
R901
220
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
V SYNC SEP
V.OUT
V.OSC
IC901 AN25125
IC901
(F-2)
H.V OSC
R905
47k
0.5%
R906
270k
C901
0.1
R902
1800
R903
100
R904
4.7
TH901
500
V SIZE
RV902
470
2.2V
2.6Vp-p
IC901 ③ REC/PB
1.8V
0.8Vp-p
IC901 ⑨ PB
IC901 ⑨ REC
IC901 ⑤ REC/PB
1.5V
1.0Vp-p
V
Approx. +0.5Vdc
09
CN951 10P 1.0MM BTOB-L
DV2
DV1
GND
VIDEO
GND
HD
EVF 5V
BRT C
BRT B
BRT A
-18Vdc
+27Vdc
L952
47μH
:2520
Q951
2SD1819A-R
Q952 (E-4)
VIDEO AMP
R957
6800
C956
39p
SL
R958
39k
Q951 (E-4)
VIDEO OUT
BUFFER
L951
47μH
:3225
R951
470
R953
470
CONT
RV951
2200
R956
39k
C955
47
6.3V
OS
C951
0.1
F
Q952
2SB1218A-QRS-TX
C952
1000p
R955
820
Q953
2SB1615-GL
C953
3900p
:3216
C954
3900p
:3216
Damper diode
D951
MA142WA-TX
(E-3)
Q953 (C-4)
H OUT
T951 FBT
Heater power supply
R959
6.8
HV
C957
1000p
500V
:3216
Negative power supply output. -25Vdc.
R961
1M
R960
150k
C958
2.2
35V
C959
0.022
B
R962
2.7M
:2125
R963
2.7M
:2125
R964
1M
G2 power
+26Vdc
The CRT cathode current flows in
no mark
VF-56
46Vp-p
48Vp-p
0V
2.0V

Horizontal oscillation frequency Adjustment

Mode	Playback
Signal	Alignment tape : For checking Hi8 mode operations (WR5-8CSE)
Mesurement Point	Pin ⑦ of CN901
Mesuring Instrument	Digital volt meter or Oscilloscope (DC range)
Specified Value	2.30 ± 0.05Vdc

Refer to 7-3-5 in Adjustments.

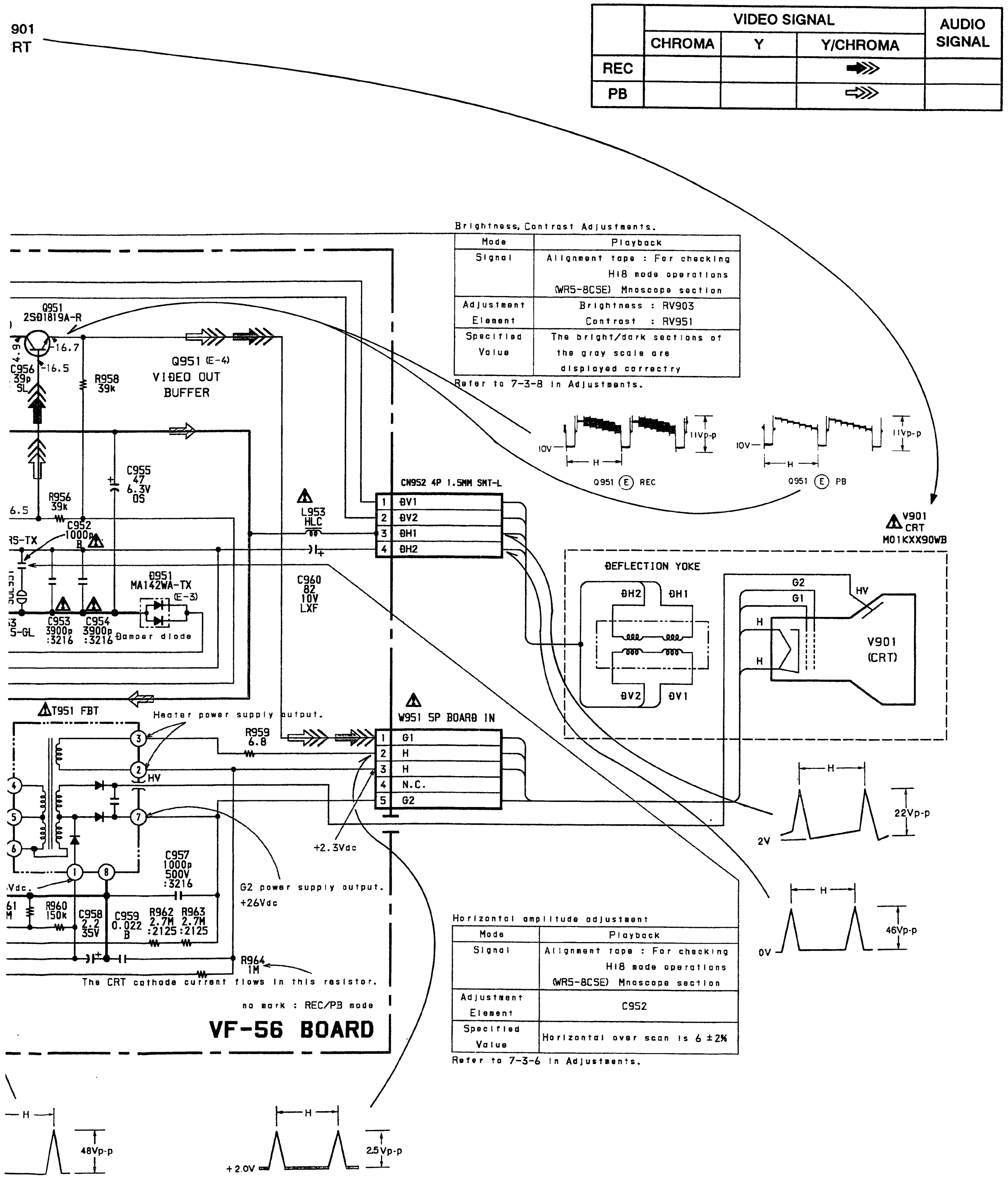
Vertical amplitude Adjustment

Mode	Playback
Signal	Alignment tape : For checking Hi8 mode operations (WR5-8CSE) Mnoscope section
Adjusting Element	RV902
Specified Value	Vertical over scan is 3.5 ± 2%

Refer to 7-3-7 in Adjustments.

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡»»	
PB			⇨»»	


901
RT
Q951
2SD1819A-R
4.9
-16.7
-16.5
C956
39p
SL
R958
39k
Q951 (E-4)
VIDEO OUT
BUFFER
C955
47
6.3V
OS
R956
39k
6.5
C952
1000p
B
RS-TX
D951
MA142WA-TX
(E-3)
C953
3900p
:3216
C954
3900p
:3216
5-GL
Damper diode
L953
HLC
C960
82
10V
LXF
CN952 4P 1.5MM SMT-L
1 DV1
2 DV2
3 DH1
4 DH2
T951 FBT
Heater power supply output.
R959
6.8
HV
W951 5P BOARD IN
1 G1
2 H
3 H
4 N.C.
5 G2
+2.3Vdc
C957
1000p
500V
:3216
G2 power supply output.
+26Vdc
Vdc.
R960
150k
C958
2.2
35V
C959
0.022
B
R962
2.7M
:2125
R963
2.7M
:2125
R964
1M
The CRT cathode current flows in this resistor.
no mark : REC/PB mode
VF-56 BOARD
10V
H
11Vp-p
Q951 (E) REC
10V
H
11Vp-p
Q951 (E) PB
V901
CRT
M01KXX90WB
DEFLECTION YOKE
DH2
DH1
DV2
DV1
G2
G1
HV
H
H
V901
(CRT)
H
22Vp-p
2V
H
46Vp-p
0V
H
48Vp-p
H
2.5Vp-p
+2.0V

Brightness, Contrast Adjustments.

Mode	Playback
Signal	Alignment tape : For checking H18 mode operations (WR5-8CSE) Mnoscope section
Adjustment Element	Brightness : RV903 Contrast : RV951
Specified Value	The bright/dark sections of the gray scale are displayed correctry

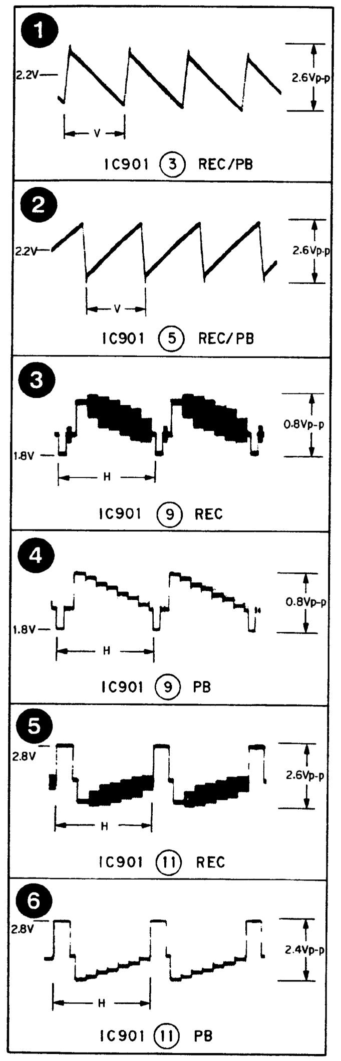
Refer to 7-3-8 in Adjustments.

Horizontal amplitude adjustment

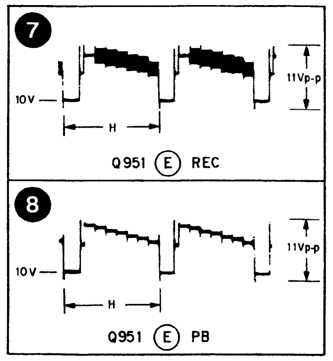
Mode	Playback
Signal	Alignment tape : For checking H18 mode operations (WR5-8CSE) Mnoscope section
Adjustment Element	C952
Specified Value	Horizontal over scan is 6 ±2%

Refer to 7-3-6 in Adjustments.

VF-55 BOARD

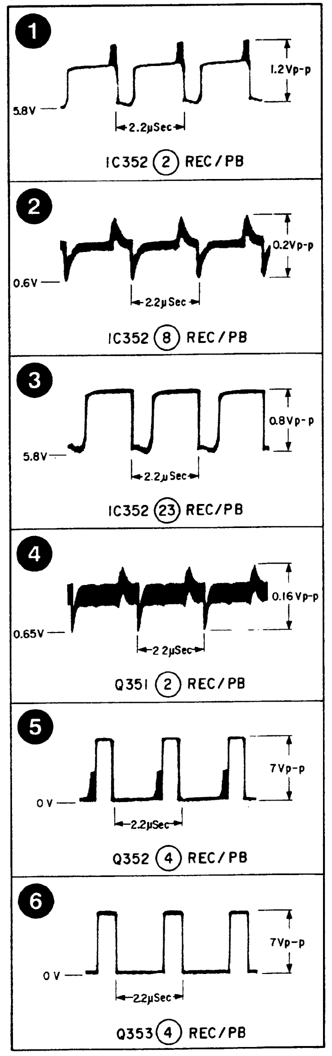


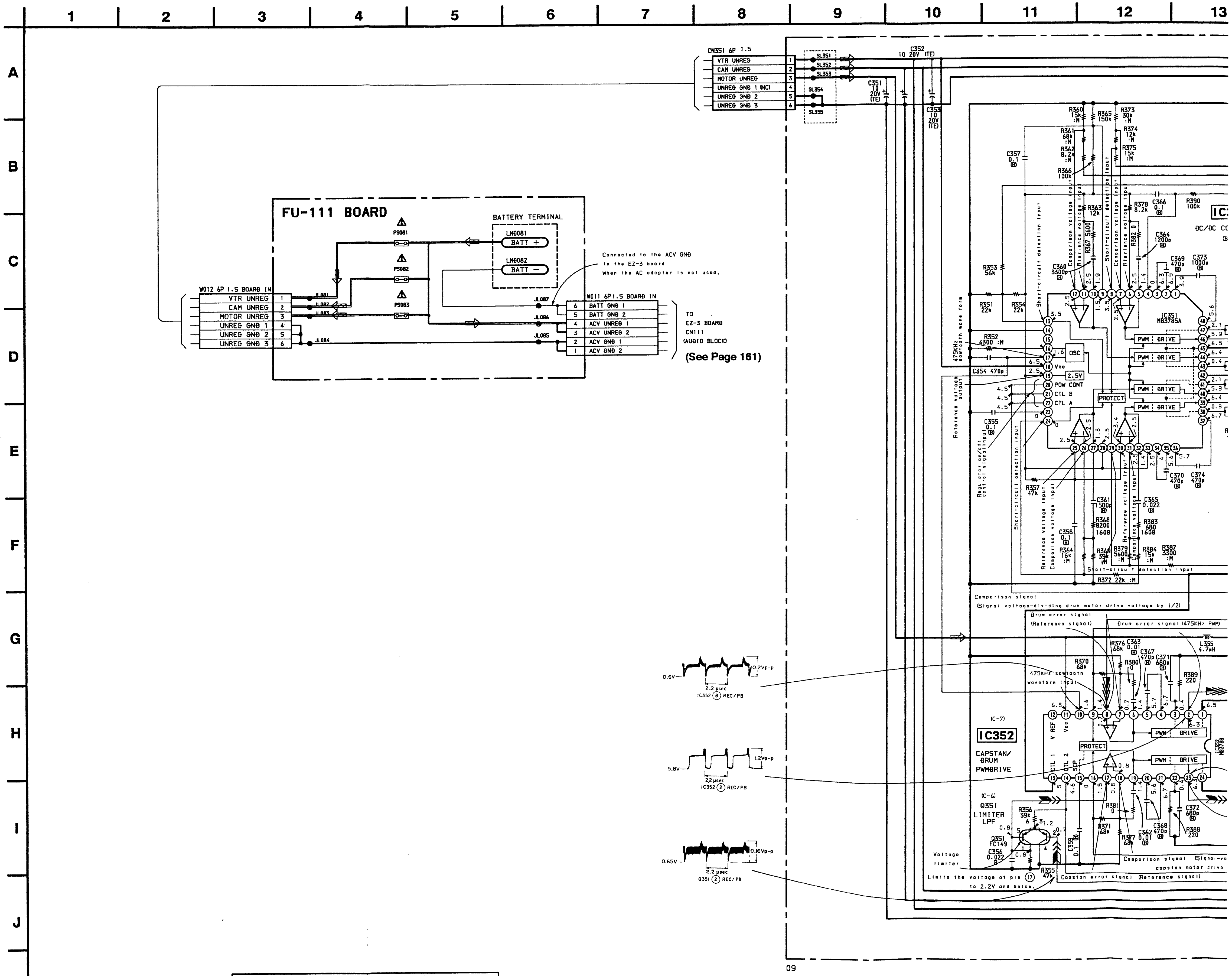
VF-56 BOARD



DD-54 (DC-DC CONVERTER, CAP/DRUM SERVO), FU-111 (BATTERY, IC LINK) SCHEMATIC DIAGRAMS

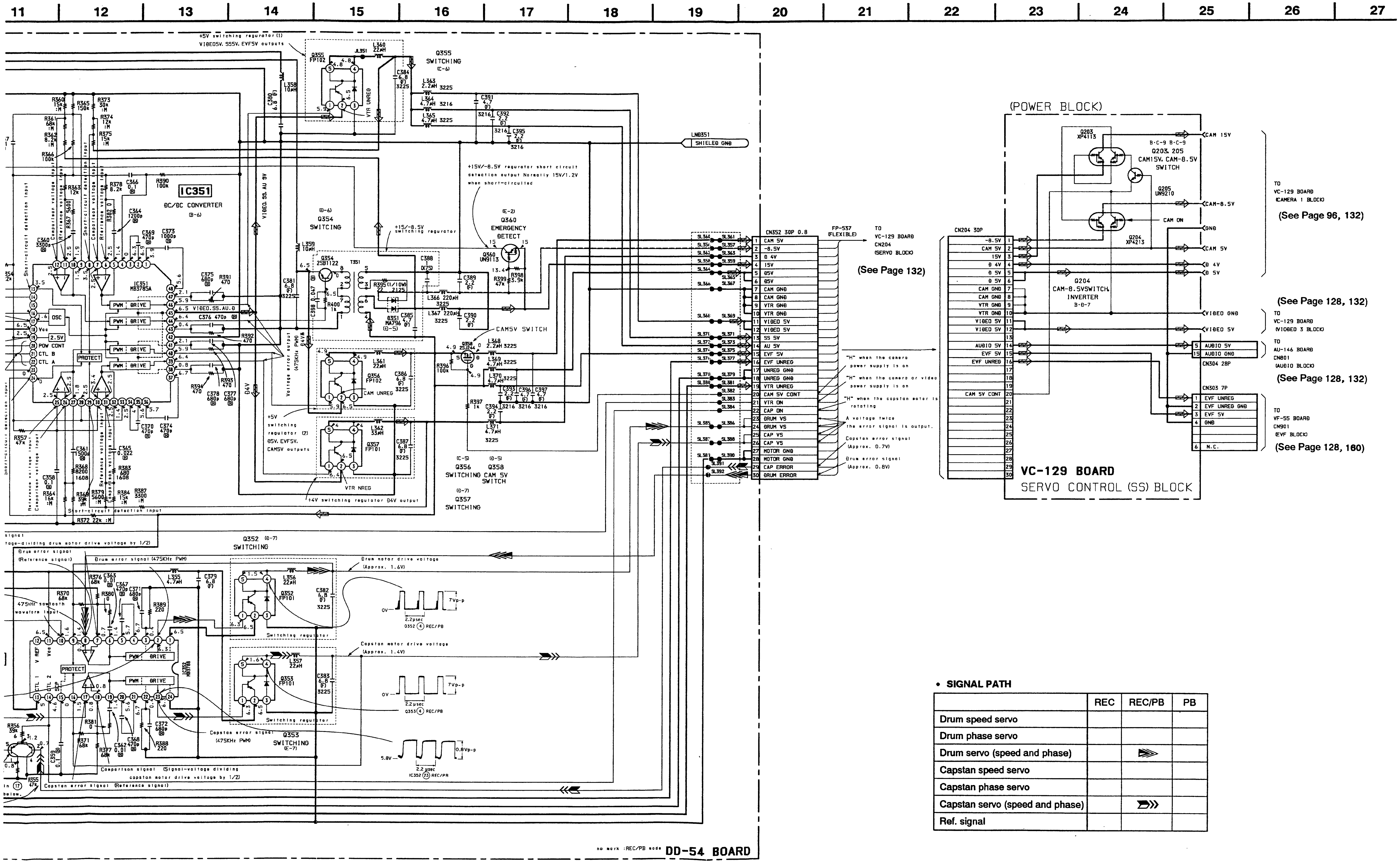
DD-54 BOARD





1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
CN351 6P 1.5
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1 (NC)
UNREG GND 2
UNREG GND 3
SL351
SL352
SL353
SL354
SL355
C352 10 20V (TE)
C351 10 20V (TE)
C353 10 20V (TE)
FU-111 BOARD
BATTERY TERMINAL
LN6081 BATT +
LN6082 BATT −
PS081
PS082
PS083
W012 6P 1.5 BOARD IN
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1
UNREG GND 2
UNREG GND 3
W011 6P 1.5 BOARD IN
BATT GND 1
BATT GND 2
ACV UNREG 1
ACV UNREG 2
ACV GND 1
ACV GND 2
Connected to the ACV GND in the EZ-3 board. When the AC adapter is not used.
TO EZ-3 BOARD CN111 (AUDIO BLOCK)
(See Page 161)
IC351 MB3785A
DC/DC CONVERTER
OSC
PWM DRIVE
PROTECT
Vcc
POW CONT
CTL B
CTL A
475KHz sawtooth wave form
Reference voltage output
Regulator on/off control signal input
Short-circuit detection input
Comparison voltage input
Reference voltage input
Comparison signal
(Signal voltage-dividing drum motor drive voltage by 1/2)
Drum error signal
(Reference signal)
Drum error signal (475KHz PWM)
475KHz sawtooth waveform input
IC352
CAPSTAN/DRUM PWM DRIVE
V REF
Vcc
CTL 1
CTL 2
Q351 LIMITER LPF
Q351 FC149
Voltage limiter
Limits the voltage of pin ⑰ to 2.2V and below.
Comparison signal
Capstan error signal (Reference signal)
capstan motor drive
L355 4.7mH
0.2Vp-p
0.6V
2.2 μsec
IC352 ⑧ REC/PB
1.2Vp-p
5.8V
2.2 μsec
IC352 ② REC/PB
0.16Vp-p
0.65V
2.2 μsec
Q351 ② REC/PB
09

POWER **POWER**


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
+5V switching regulator (1)
VIDEO5V, SS5V, EVF5V outputs
Q355 SWITCHING (C-6)
IC351 DC/DC CONVERTER (B-6)
IC351 MB3785A
LN0351 SHIELED GND
+15V/-8.5V regulator short circuit detection output Normally 15V/1.2V when short-circuited
Q354 SWITCING (D-6)
Q360 EMERGENCY DETECT (E-2)
+15/-8.5V switching regulator
CAM5V SWITCH
+5V switching regulator (2) 05V, EVF5V, CAM5V outputs
+4V switching regulator D4V output
Q356 SWITCHING (C-5)
Q358 CAM 5V SWITCH (D-5)
Q357 SWITCHING (D-7)
CN352 30P 0.8
FP-537 (FLEXIBLE)
TO VC-129 BOARD CN204 (SERVO BLOCK)
(See Page 132)
CAM 5V
-8.5V
D 4V
15V
05V
CAM GND
VTR GND
VIDEO 5V
SS 5V
AU 5V
EVF 5V
EVF UNREG
UNREG GND
VTR UNREG
CAM 5V CONT
VTR ON
CAP ON
DRUM VS
CAP VS
MOTOR GND
CAP ERROR
DRUM ERROR
"H" when the camera power supply is on
"H" when the camera or video power supply is on
"H" when the capstan motor is rotating
A voltage twice the error signal is output.
Capstan error signal (Approx. 0.7V)
Drum error signal (Approx. 0.8V)
(POWER BLOCK)
CN204 30P
Q203 XP4113
Q203, 205 CAM15V, CAM-8.5V SWITCH
Q205 UN9210
Q204 XP4213
Q204 CAM-8.5VSWITCH INVERTER B-0-7
CAM ON
CAM 15V
CAM-8.5V
GND
D 4V
D 5V
VIDEO GND
VIDEO 5V
AUDIO 5V
AUDIO GND
CN304 28P
CN303 7P
EVF UNREG
EVF UNREG GND
EVF 5V
N.C.
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96, 132)
(See Page 128, 132)
TO VC-129 BOARD (VIDEO 3 BLOCK)
TO AU-146 BOARD CN801 (AUDIO BLOCK)
(See Page 128, 132)
TO VF-55 BOARD CN901 (EVF BLOCK)
(See Page 128, 160)
VC-129 BOARD
SERVO CONTROL (SS) BLOCK
Q352 SWITCHING (D-7)
Q353 SWITCHING (E-7)
IC352 M63708
Drum error signal (475KHz PWM)
Drum motor drive voltage (Approx. 1.6V)
Capstan motor drive voltage (Approx. 1.4V)
Capstan error signal (475KHz PWM)
Switching regulator
7Vp-p
2.2μsec
Q352 ④ REC/PB
Q353 ④ REC/PB
0.8Vp-p
IC352 ㉓ REC/PB
Comparison signal (Signal-voltage dividing capstan motor drive voltage by 1/2)
Capstan error signal (Reference signal)
no mark :REC/PB mode
DD-54 BOARD

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⇛	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⋙	
Ref. signal			

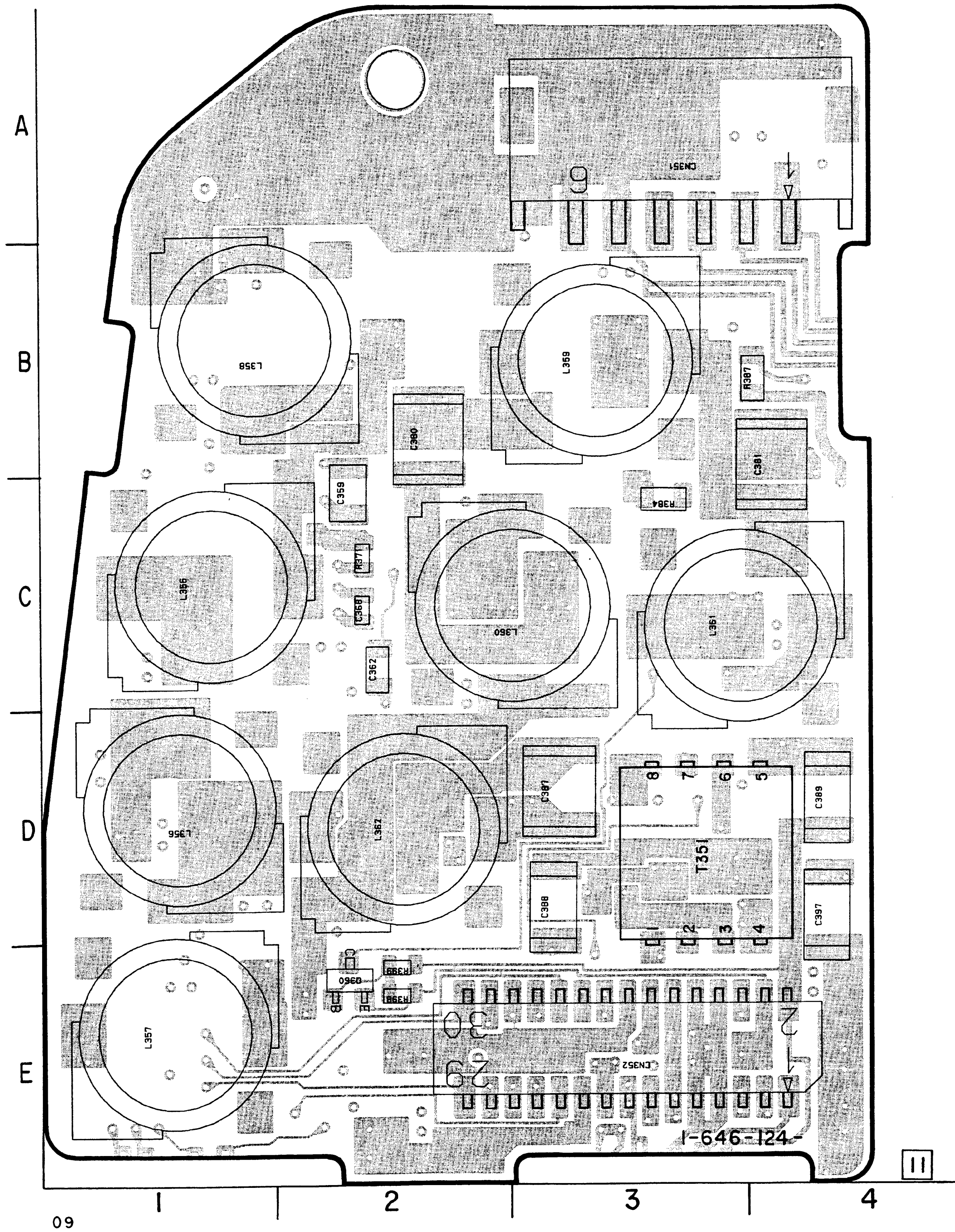
DD-54 (DC-DC CONVERTER, CAP/DRUM SERVO), FU-111 (BATTERY, IC LINK) PRINTED WIRING BOARDS

— Ref. No. DD-54, FU-111 BOARDS: 9000 series —

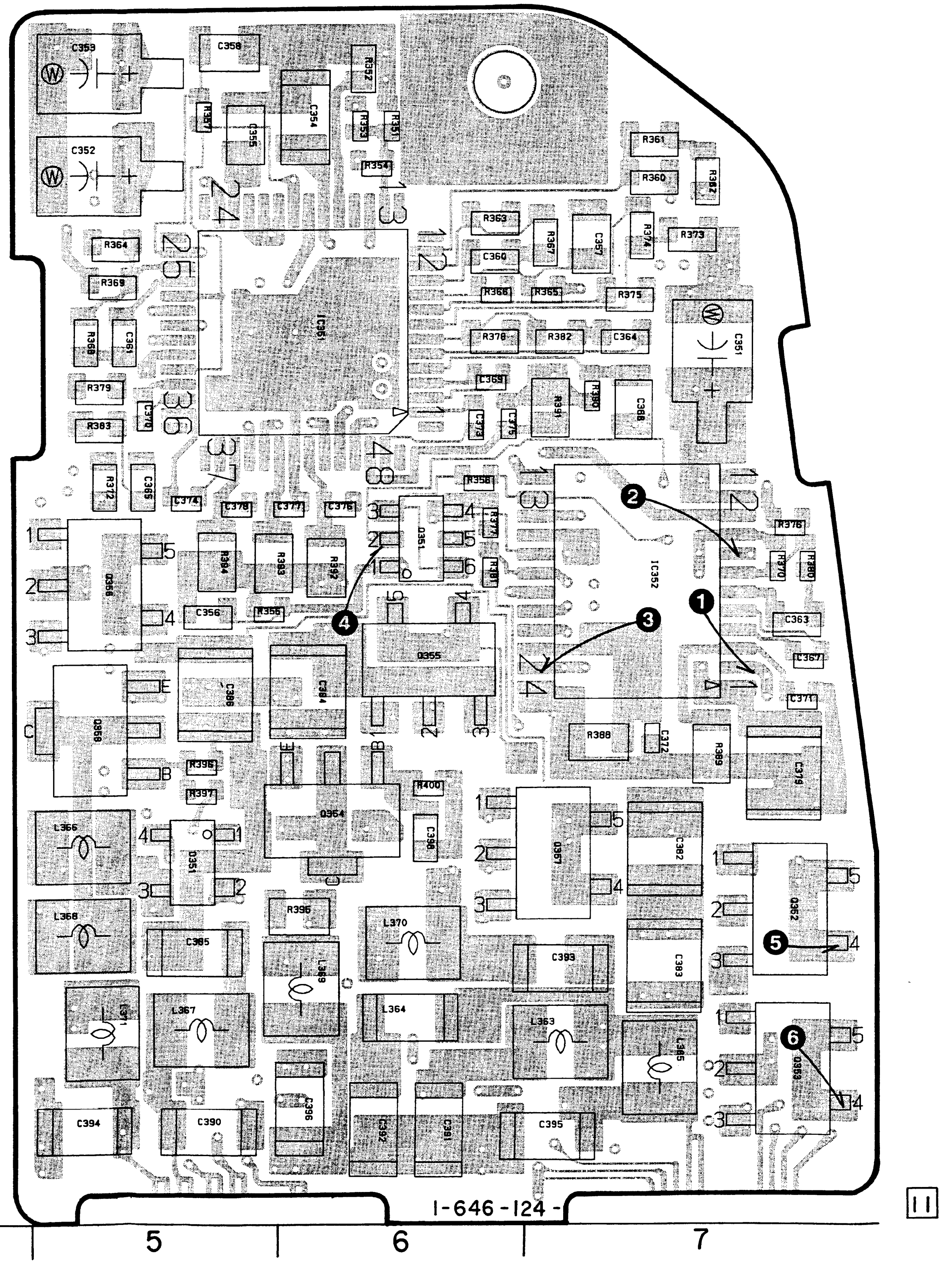
- **For printed wiring boards**
- DD-54 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

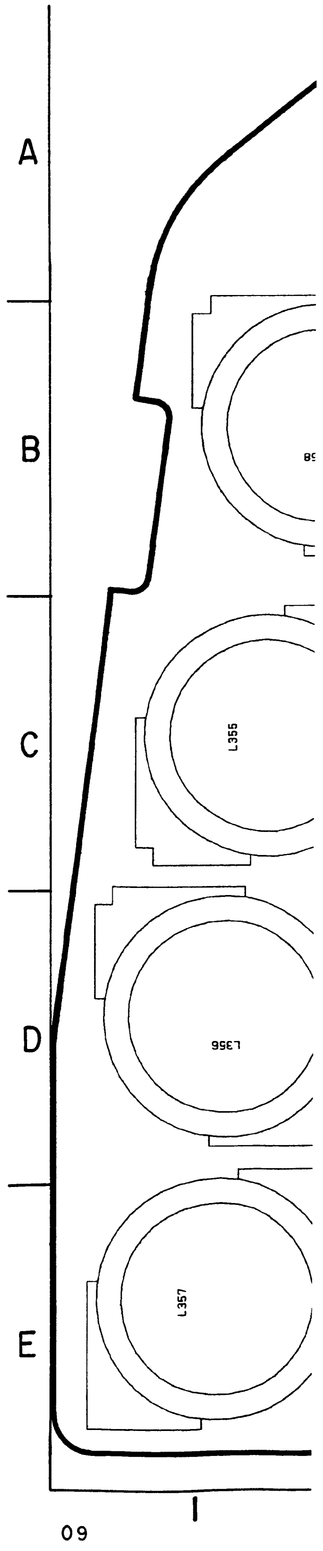
DD-54 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
4
CN351
L358
L359
L360
L361
L356
L362
L357
L355
T351
CN352
C380
C381
C387
C388
C389
C397
R387
R384
R371
C362
Q960
1-646-124-
11
09

DD-54 BOARD (CONDUCTOR SIDE)


5
6
7
C353
C352
C358
C354
C355
IC351
IC352
Q351
Q355
Q356
Q358
Q364
Q361
Q367
Q362
Q359
L366
L368
L370
L367
L364
L369
L363
L365
C351
C363
C379
C382
C383
C384
C385
C386
C390
C394
C395
C396
R361
R360
R364
R369
R373
R375
R376
R378
R382
R388
R389
R396
R400
1-646-124-
11
❶
❷
❸
❹
❺
❻

DD-54 B

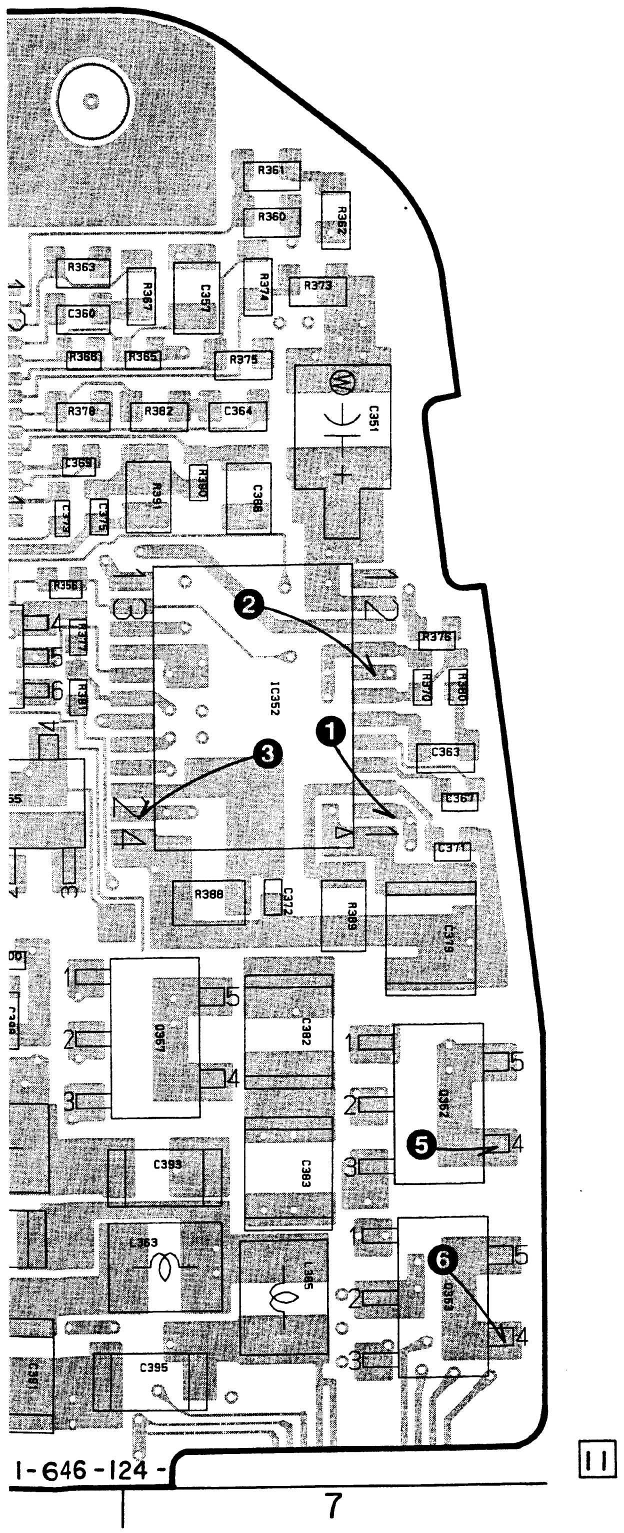

A
B
C
D
E
1
L355
L356
L357
09

board. However, the patterns of
ıded in the diagram.

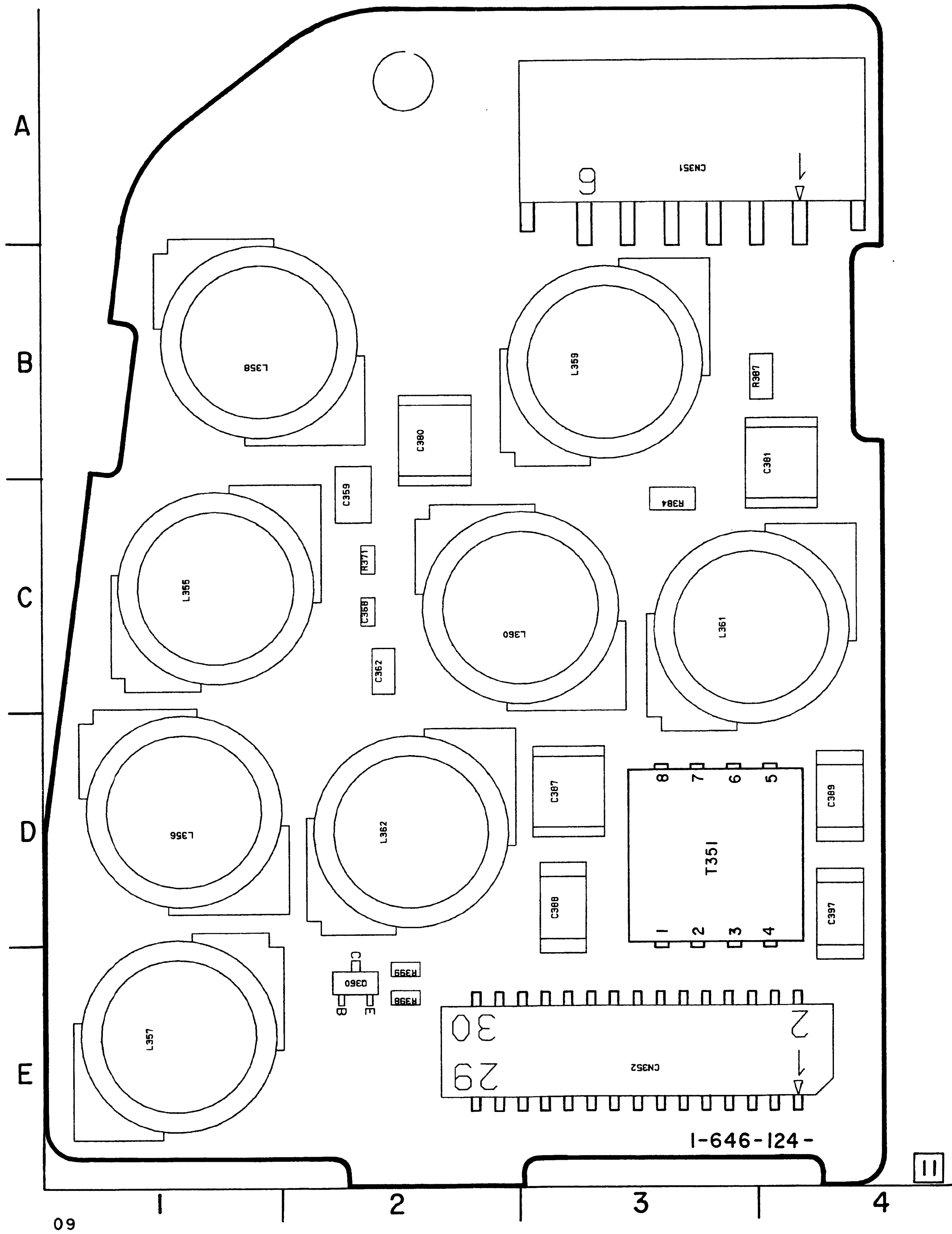
played in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

:TOR SIDE)

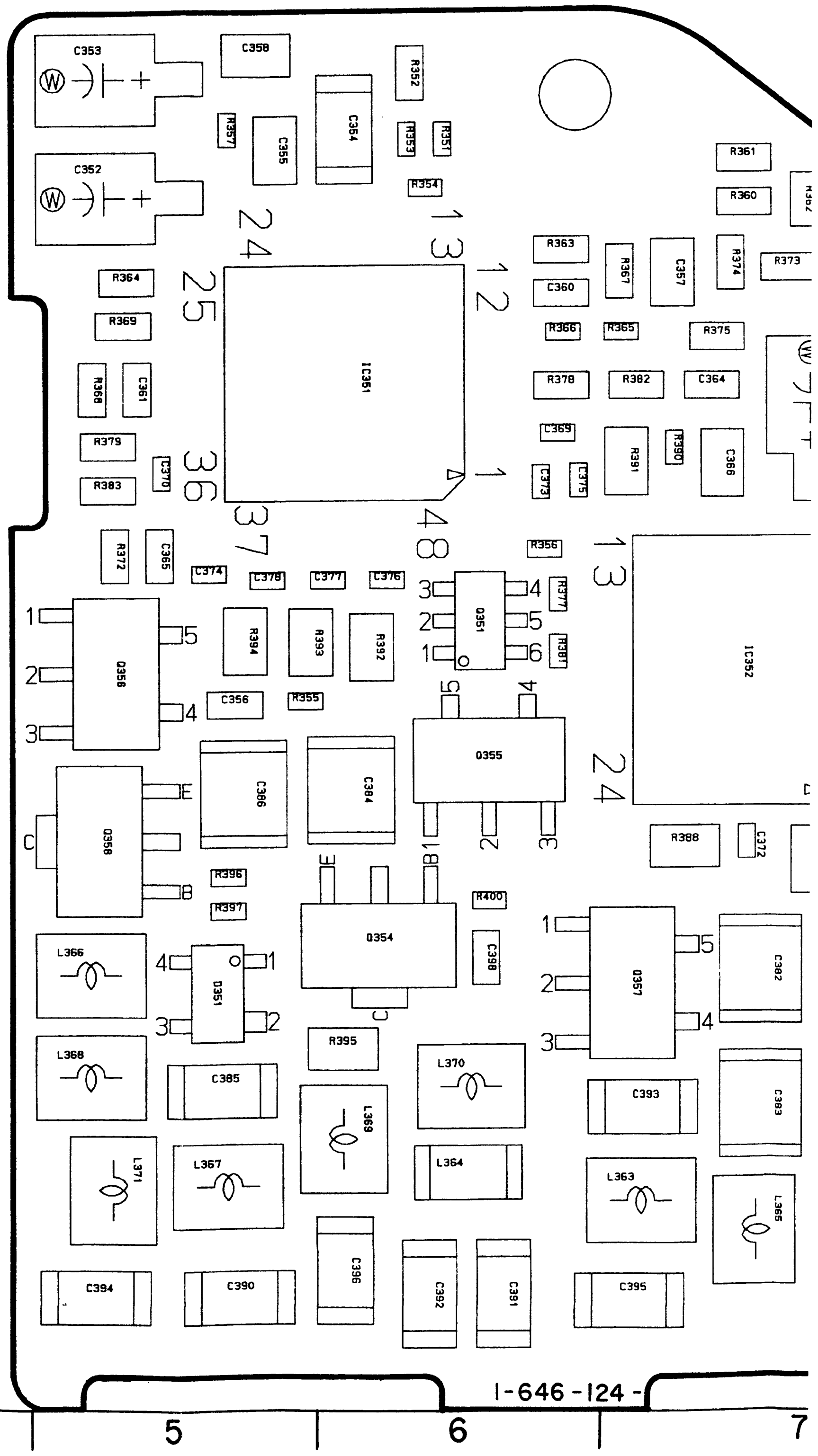

R361
R360
R362
R363
R367
C357
R374
R373
C360
R366
R365
R375
R378
R382
C364
C351
R391
R390
C388
IC352
C363
C367
C371
R388
C372
R389
C379
Q357
C382
Q362
C393
C383
L363
L365
Q363
C395
❶
❷
❸
❺
❻
1-646-124-
7
11

DD-54 BOARD (COMPONENT SIDE)

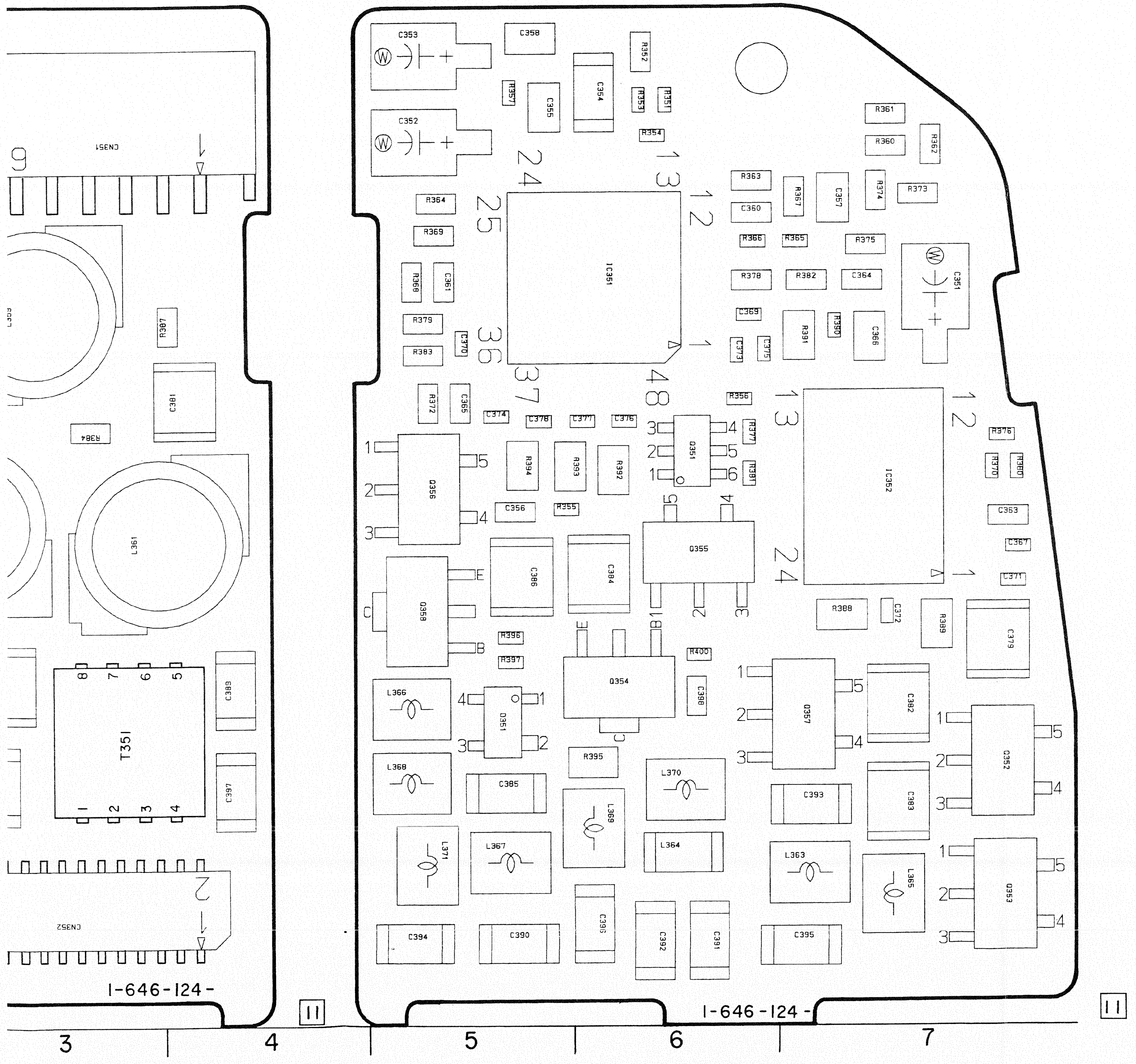

A
B
C
D
E
CN351
9
1
L358
L359
R387
C380
C381
C359
R384
L355
R371
C368
C362
L360
L361
L356
L362
C387
C389
T351
C388
C397
L357
Q360
R399
R398
CN352
30
29
2
1-646-124-
11
1
2
3
4

09

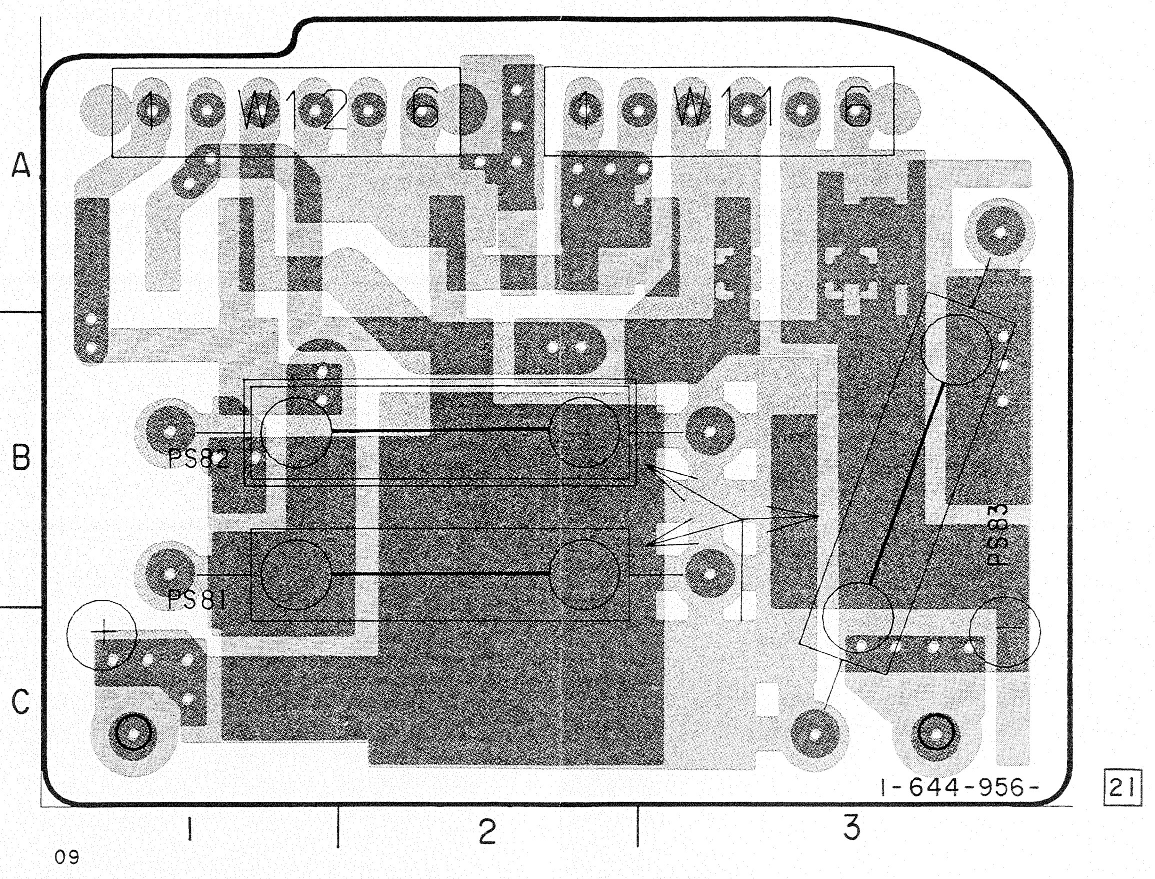
DD-54 BOARD (CONDUCTOR SIDE)


C353
C352
C358
C355
C354
R352
R357
R353
R351
R354
R361
R360
IC351
24
25
36
37
48
13
12
1
R364
R369
R368
C361
R379
R383
C370
R363
C360
R367
C357
R374
R373
R366
R365
R375
R378
R382
C364
C369
C373
C375
R391
R390
C366
R372
C365
C374
C378
C377
C376
R356
Q351
R377
R381
IC352
Q356
R394
R393
R392
C356
R355
Q355
C386
C384
Q358
R396
R397
R388
C372
R400
Q354
C398
Q357
C382
L366
D351
R395
L368
C385
L369
L370
C393
C383
L371
L367
L364
L363
L365
C394
C390
C396
C392
C391
C395
1-646-124-
5
6
7

DD-54 BOARD (CONDUCTOR SIDE)


CN351
R307
C381
R384
L361
T351
C389
C387
CN352
1-646-124-
C353
C358
R352
C352
R357
C355
C354
R353
R351
R354
R361
R360
R362
R363
R367
C357
R374
R373
R364
R369
IC351
C360
R366
R365
R375
C351
R368
C361
R378
R382
C364
R379
C369
R391
R390
C366
R383
C370
C373
C375
R372
C365
C374
C378
C377
C376
R356
Q351
R377
R394
R393
R392
R381
Q356
IC352
R376
R370
R380
C356
R355
C363
C367
Q355
C386
C384
Q358
C371
R388
C372
R389
C379
R396
R397
R400
Q354
L366
D351
C398
Q357
C382
Q352
L368
R395
C385
L370
L369
C393
C383
L371
L367
L364
L363
L365
Q353
C394
C390
C396
C392
C391
C395
1-646-124-
11
3
4
5
6
7

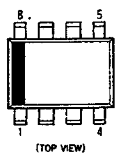
FU-111 BOARD (COMPONENT SIDE)


W1
PS82
PS81
PS83
A
B
C
1
2
3
1-644-956-
21
09

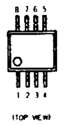
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

4-3. SEMICONDUCTOR

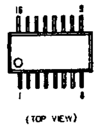
AK642F


8
5
1
4
(TOP VIEW)

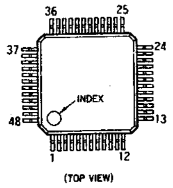
CXA1211M
LM358D
LM358PW
NJM3404AV
NJM3416V
TA75W01F11



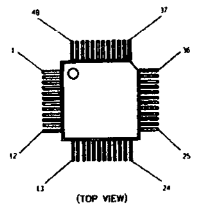
CXA14152
CXA1618AN
CXD2121N
CXL1506N
FA7615M
FB86168PFV-ER



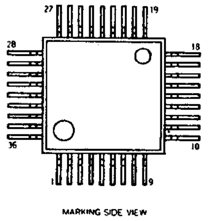
CXA1481AR
CXD211R
MB3785APFV-G-BND-ER
MB8834PFV
MCD002AR


36
25
37
24
INDEX
48
13
1
12
(TOP VIEW)

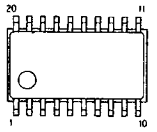
CXA1488R



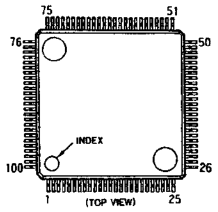
CXA1536Q


MARKING SIDE VIEW

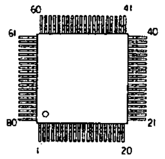
CXD1250N
CXD2104BN



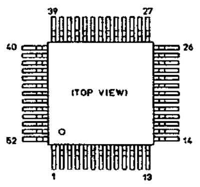
CXD2130R-T6
CXP80620A-015R
CXP80624A-013R
MB89092PFV-G-112A


75
51
76
50
INDEX
100
26
1
(TOP VIEW)
25

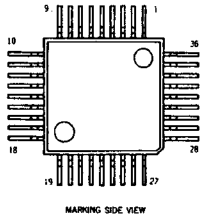
CXD2133R-T6


60
41
61
40
80
21
1
20

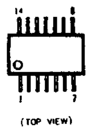
IR3Y09



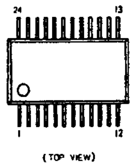
LB8110M


MARKING SIDE VIEW

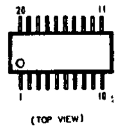
LM324PW
NJM3403AV
SN74HCU04ADB
TC4066BFS
TL1596CPW


14
8
1
7
(TOP VIEW)

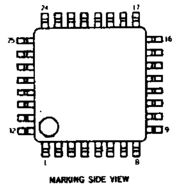
MB3788PFV


24
13
1
12
(TOP VIEW)

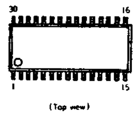
MB883463FFV-EF
MPC1720VM
MPC1724VMEL
μPD6453GT-621


20
11
1
10
(TOP VIEW)

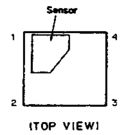
MC13400FU


MARKING SIDE VIEW

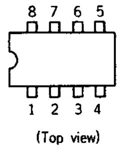
MCD0048N


30
16
1
15
(Top view)

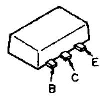
RS-20E-T


Sensor
1
4
2
3
(TOP VIEW)

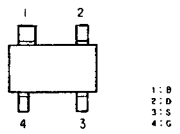
S-8420F


8 7 6 5
1 2 3 4
(Top view)

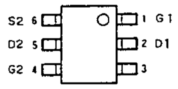
2SB1581



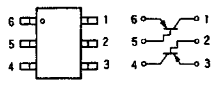
3SK248


1
2
4
3
1 : D
2 : D
3 : S
4 : G

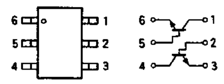
FC13


S2 6
D2 5
G2 4
1 G1
2 D1
3

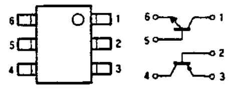
FC149
XP4113
XP4401



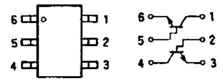
XP4213



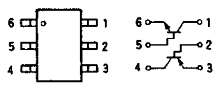
XP4312



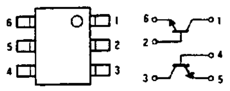
XP4501



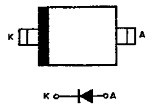
XP4601



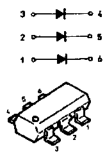
XP6215



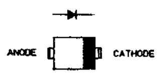
MA110



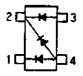
MA1S121



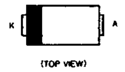
MA365 (E)


ANODE
CATHODE

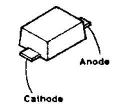
MA796



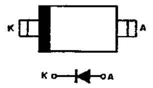
MA8051-M
MA8082-M



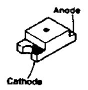
MA8082-M
MA8091-M


Anode
Cathode

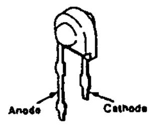
RD8.2VM-T1B3



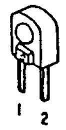
BR1102W


Anode
Cathode

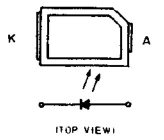
GL453

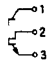

Anode
Cathode

PT4850F

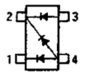


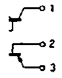
LN1251C



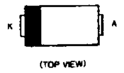


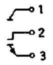
MA796



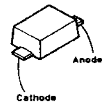


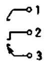
MA8051-M
MA8082-M



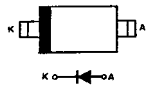


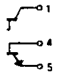
MA8082-M
MA8091-M


Anode
Cathode

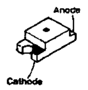


RD8.2VM-T1B3

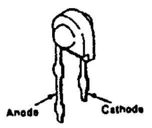




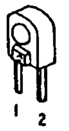
BR1102W


Anode
Cathode

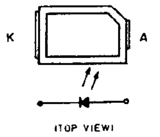
GL453


Anode
Cathode

PT4850F



LN1251C



SECTION 5

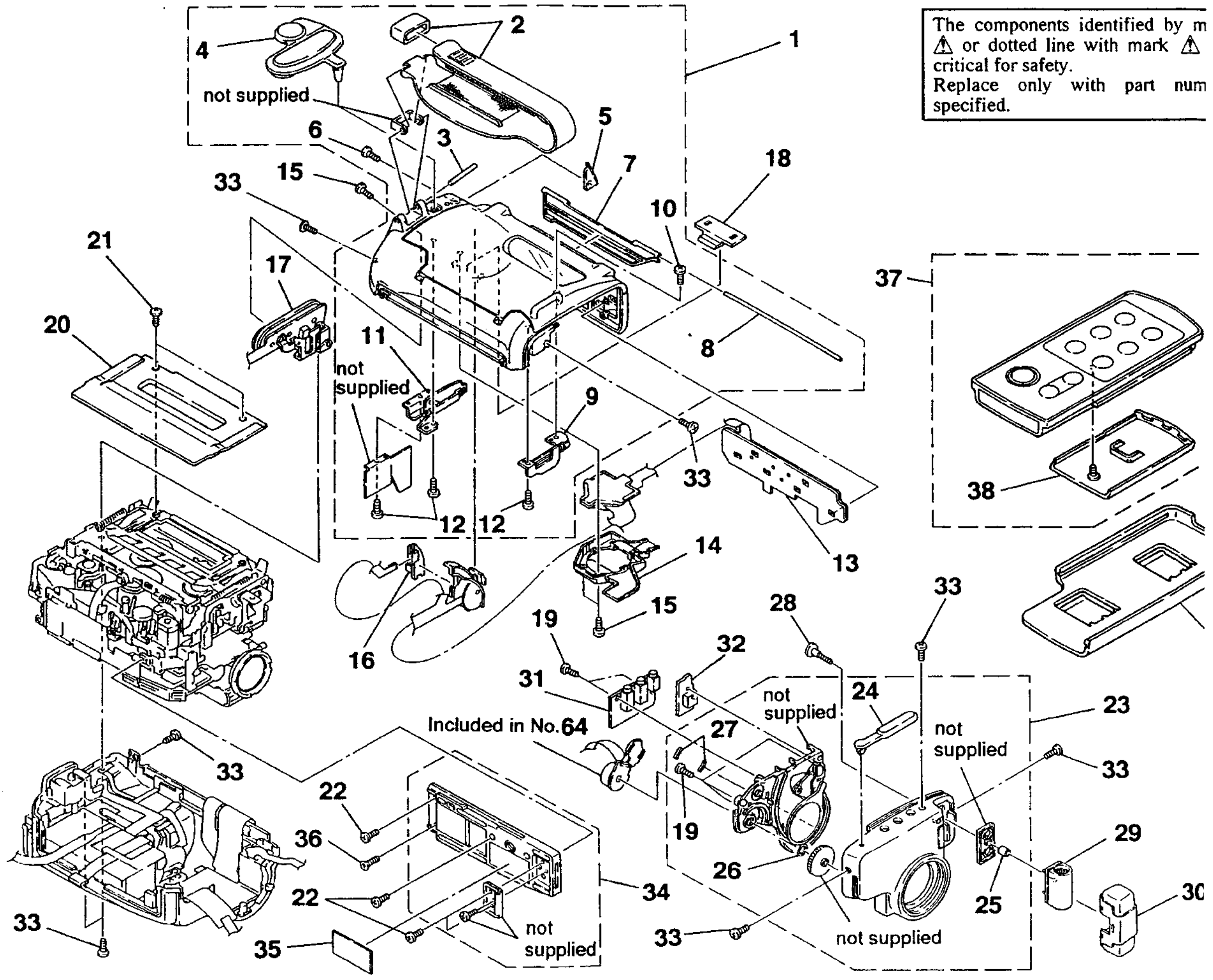
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no refer number in the exploded views are supplied.
- Hardware (# mark) list is given in th of this parts list.

The components identified by m ⚠ or dotted line with mark ⚠ critical for safety. Replace only with part num specified.

5-1. CABINET (L) AND F PANEL ASSEMBLIES


1
2
3
4
not supplied
5
6
7
8
9
10
11
not supplied
12
12
13
14
15
15
16
17
18
19
19
20
21
22
22
23
24
25
26
27
28
29
30
31
32
33
33
33
33
33
33
33
34
35
36
37
38
Included in No.64
not supplied
not supplied
not supplied
not supplied

Ref. No.	Part No.	Description	Remark
1	X-3942-206-1	CABINET (L) ASSY	
2	3-948-905-01	BELT, GRIP	
3	3-948-913-01	SHAFT, BELT	
4	3-948-927-01	COVER, JACK	
5	3-948-922-01	BRACKET (L), STRAP	
6	3-713-786-01	SCREW (M2X4)	
7	3-948-921-01	COVER, FUNCTION	
* 8	3-950-507-01	SHAFT, F DOOR	
9	X-3942-230-1	ARM ASSY, FRONT LID	
10	3-719-381-31	SCREW (M2X3)	
11	X-3941-900-1	ARM ASSY, LID	
12	3-719-601-21	SCREW (B2X5), TAPPING	
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
* 14	3-949-027-01	COVER, FK	
15	3-719-601-11	SCREW (B2X5), TAPPING	
16	A-7071-736-A	RE-23 BOARD, COMPLETE	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
18	3-949-028-01	PLATE, ORNAMENTAL, CABINET (L)	
19	3-719-601-01	SCREW (B2X5), TAPPING	
* 20	3-949-026-11	CASE, CASSETTE	

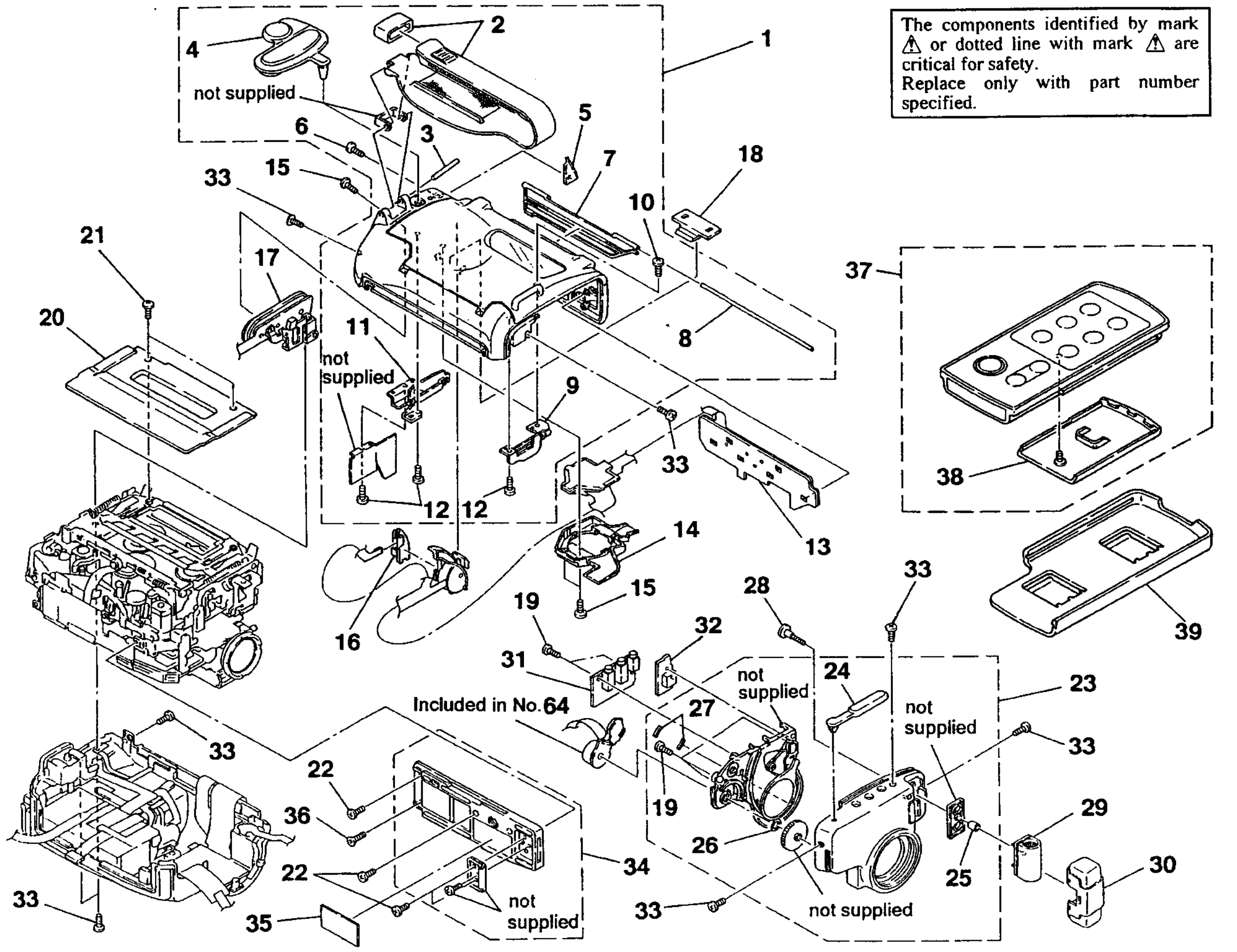
Ref. No.	Part No.	Description
21	3-728-126-11	SCREW (M1.4X2.5), SPECIAL HEAD
22	3-719-381-11	SCREW (M2X5)
23	X-3942-203-1	PANEL ASSY, F
24	3-948-931-01	COVER (F), JACK
25	3-657-842-01	SPACER (3X4)
* 26	3-950-033-01	RING (7.4X5X1.2), O
27	3-951-604-01	CUSHION (B), LENS
28	3-950-590-01	SCREW (B2) (2X7), TAPPING
29	1-542-190-11	MICROPHONE UNIT
30	X-3941-910-1	GRILLE ASSY, WINDOW
31	A-7071-735-A	MA-164 BOARD, COMPLETE
32	A-7071-740-A	RE-22 BOARD, COMPLETE
33	3-719-381-01	SCREW (M2X4)
34	X-3942-550-1	CABINET (BOTTOM) ASSY
* 35	3-950-397-01	LABEL, MODEL NUMBER (AEP)
* 35	3-951-498-01	LABEL, MODEL NUMBER (UK)
36	3-724-437-01	SCREW (2X4)
37	1-693-192-21	REMOTE COMMANDER (RMT-703)
38	3-950-097-01	COVER BATTERY, REMOCON
39	3-950-096-01	HOLDER, REMOTE CONTROL

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

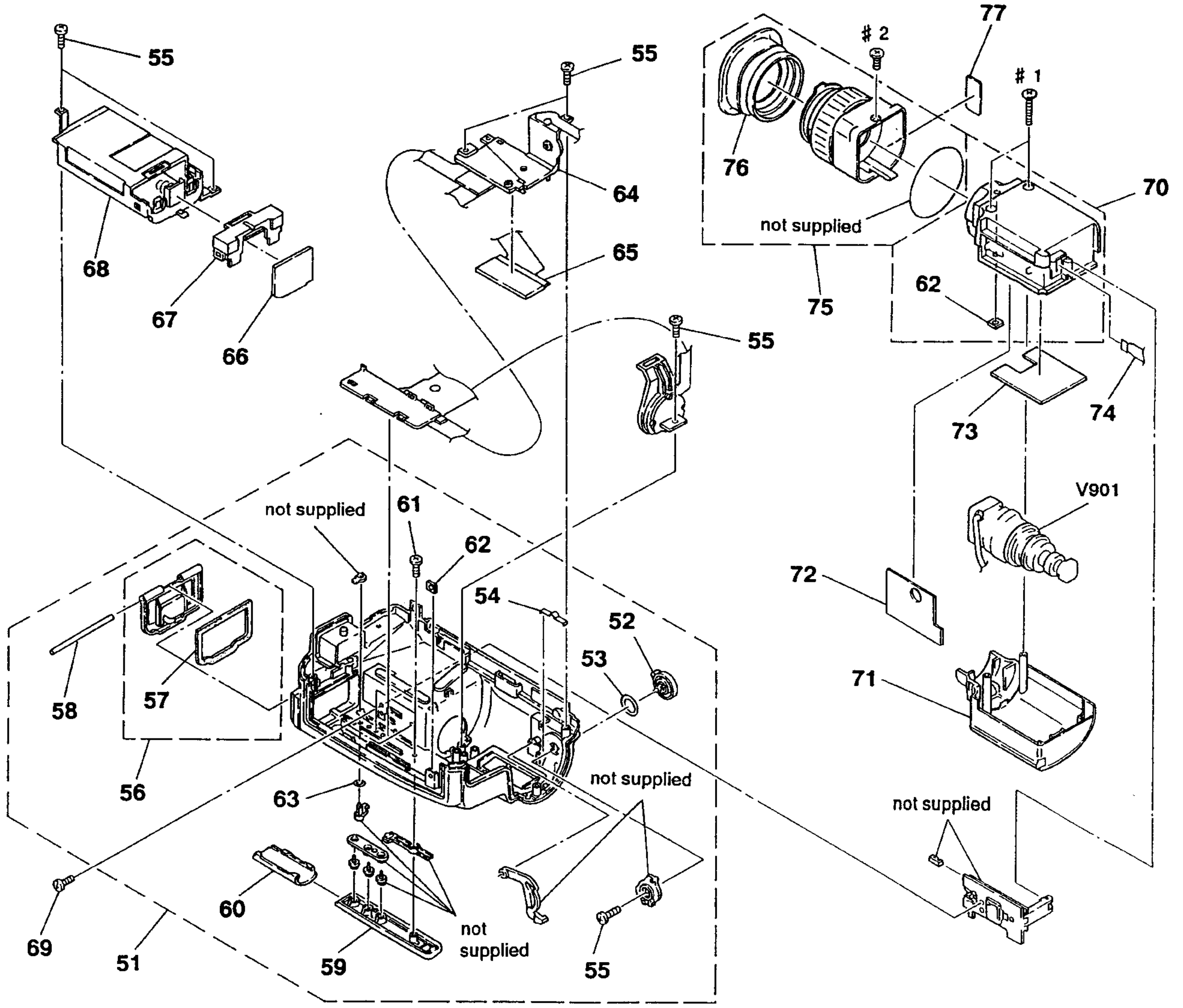
5-1. CABINET (L) AND F PANEL ASSEMBLIES

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.


4
not supplied
2
1
6
3
5
7
33
15
18
10
21
17
20
11
not supplied
8
37
9
12
12
33
13
14
38
15
16
19
28
33
32
39
31
24
23
not supplied
not supplied
Included in No.64
27
33
33
22
36
19
29
26
30
22
34
25
33
35
not supplied
33
not supplied

Ref. No.	Part No.	Description	Remark
1	X-3942-206-1	CABINET (L) ASSY	
2	3-948-905-01	BELT, GRIP	
3	3-948-913-01	SHAFT, BELT	
4	3-948-927-01	COVER, JACK	
5	3-948-922-01	BRACKET (L), STRAP	
6	3-713-786-01	SCREW (M2X4)	
7	3-948-921-01	COVER, FUNCTION	
* 8	3-950-507-01	SHAFT, F DOOR	
9	X-3942-230-1	ARM ASSY, FRONT LID	
10	3-719-381-31	SCREW (M2X3)	
11	X-3941-900-1	ARM ASSY, LID	
12	3-719-601-21	SCREW (B2X5), TAPPING	
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
* 14	3-949-027-01	COVER, FK	
15	3-719-601-11	SCREW (B2X5), TAPPING	
16	A-7071-736-A	RE-23 BOARD, COMPLETE	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
18	3-949-028-01	PLATE, ORNAMENTAL, CABINET (L)	
19	3-719-601-01	SCREW (B2X5), TAPPING	
* 20	3-949-026-11	CASE, CASSETTE	
21	3-728-126-11	SCREW (M1.4X2.5), SPECIAL HEAD	
22	3-719-381-11	SCREW (M2X5)	
23	X-3942-203-1	PANEL ASSY, F	
24	3-948-931-01	COVER (F), JACK	
25	3-657-842-01	SPACER (3X4)	
* 26	3-950-033-01	RING (7.4X5X1.2), O	
27	3-951-604-01	CUSHION (B), LENS	
28	3-950-590-01	SCREW (B2) (2X7), TAPPING	
29	1-542-190-11	MICROPHONE UNIT	
30	X-3941-910-1	GRILLE ASSY, WINDOW	
31	A-7071-735-A	MA-164 BOARD, COMPLETE	
32	A-7071-740-A	RE-22 BOARD, COMPLETE	
33	3-719-381-01	SCREW (M2X4)	
34	X-3942-550-1	CABINET (BOTTOM) ASSY	
* 35	3-950-397-01	LABEL, MODEL NUMBER (AEP)	
* 35	3-951-498-01	LABEL, MODEL NUMBER (UK)	
36	3-724-437-01	SCREW (2X4)	
37	1-693-192-21	REMOTE COMMANDER (RMT-703)	
38	3-950-097-01	COVER BATTERY, REMOCON	
39	3-950-096-01	HOLDER, REMOTE CONTROL	

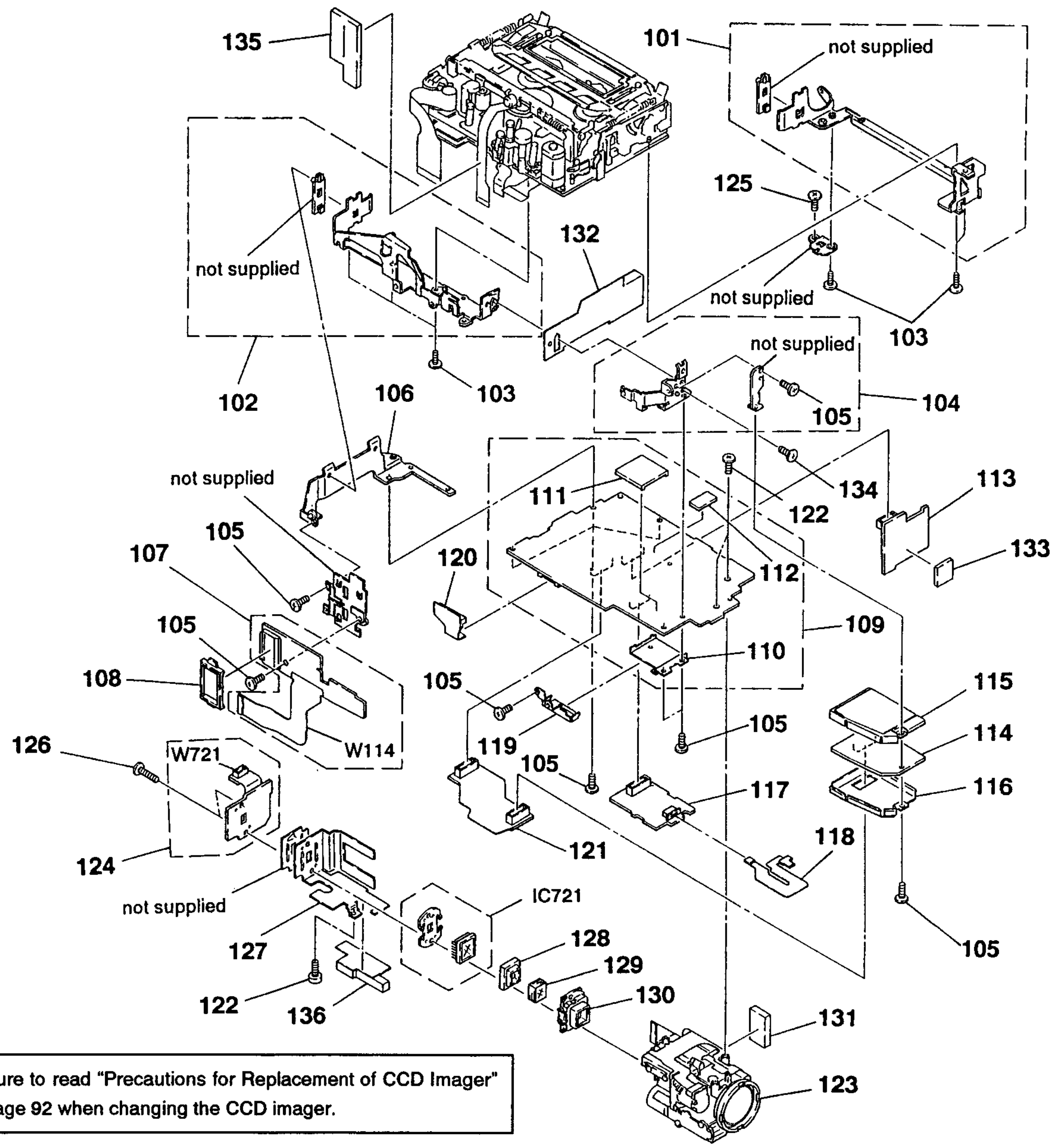
5-2. CABINET (R) ASSEMBLY


55
55
# 2
77
# 1
76
70
64
not supplied
68
65
75
62
67
66
55
73
74
V901
not supplied
61
62
72
54
52
58
57
53
71
56
63
not supplied
not supplied
60
not supplied
69
51
59
55

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	X-3942-205-1	CABINET (R) ASSY	
52	3-948-895-01	KNOB, POWER	
53	3-379-467-01	RING (DIA. 9.4), O	
54	3-948-896-01	SPRING, LEAF	
55	3-719-601-01	SCREW (B2X5), TAPPING	
56	X-3942-286-1	LID ASSY, BATTERY	
57	3-950-032-01	RUBBER (BATTERY), WATERPROOF	
58	3-948-864-01	SHAFT, BATTERY LID	
59	3-950-125-11	RAIL, COVER	
60	3-950-243-01	COVER, SLIDE	
61	3-719-845-01	SCREW (B2X4), TAPPING	
62	3-718-233-01	NUT, PLATE	
* 63	3-949-434-01	RING (4X3X0.5), O	
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)	
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL	
66	A-7071-739-A	FU-111 BOARD, COMPLETE	
67	1-537-436-11	TERMINAL BOARD, BATTERY	
68	X-3942-229-1	HOLDER ASSY, BATTERY	
69	3-719-381-11	SCREW (M2X5)	
70	X-3941-941-1	CABINET (L) ASSY, VF	
71	X-3942-384-1	CABINET (R) ASSY, VF	
72	A-7063-405-A	VF-56 BOARD, COMPLETE	
73	A-7063-404-A	VF-55 BOARD, COMPLETE	
74	1-645-053-12	FP-603 FLEXIBLE BOARD	
75	X-3941-940-1	FINDER ASSY	
76	3-951-104-01	EYE CUP	
* 77	3-704-235-01	LABEL, CAUTION (UK)	
⚠V901	1-452-673-11	CRT ASSY (M01KXX90WB)	

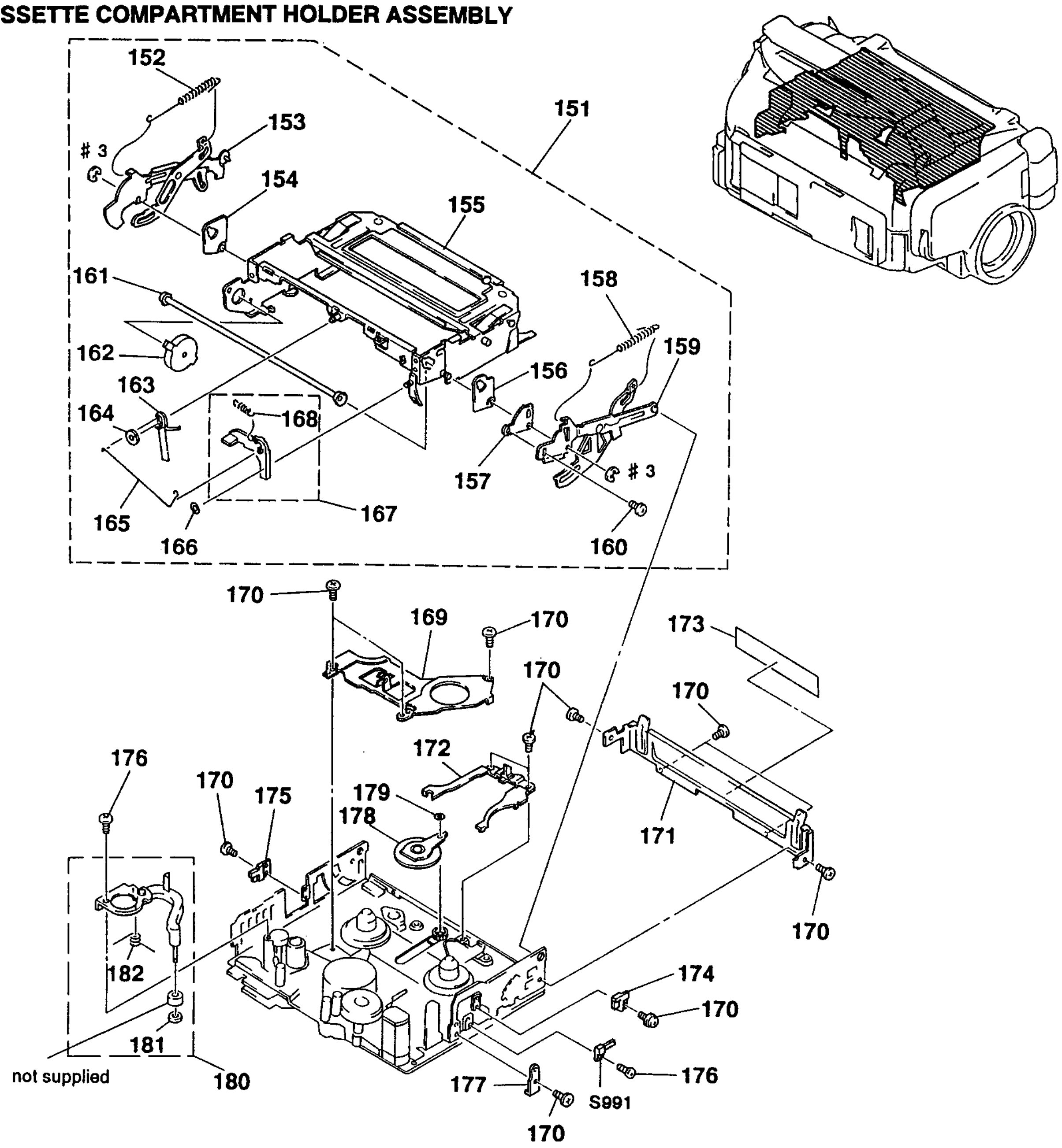
5-3. MAIN BOARDS ASSEMBLY


135
101
not supplied
125
132
not supplied
102
103
not supplied
103
not supplied
104
106
103
105
not supplied
134
113
111
122
105
107
120
112
133
105
109
108
110
115
105
W114
105
126
W721
119
114
105
116
117
124
121
118
not supplied
IC721
128
127
129
105
130
122
136
131
123

* Be sure to read "Precautions for Replacement of CCD Imager" on page 92 when changing the CCD imager.

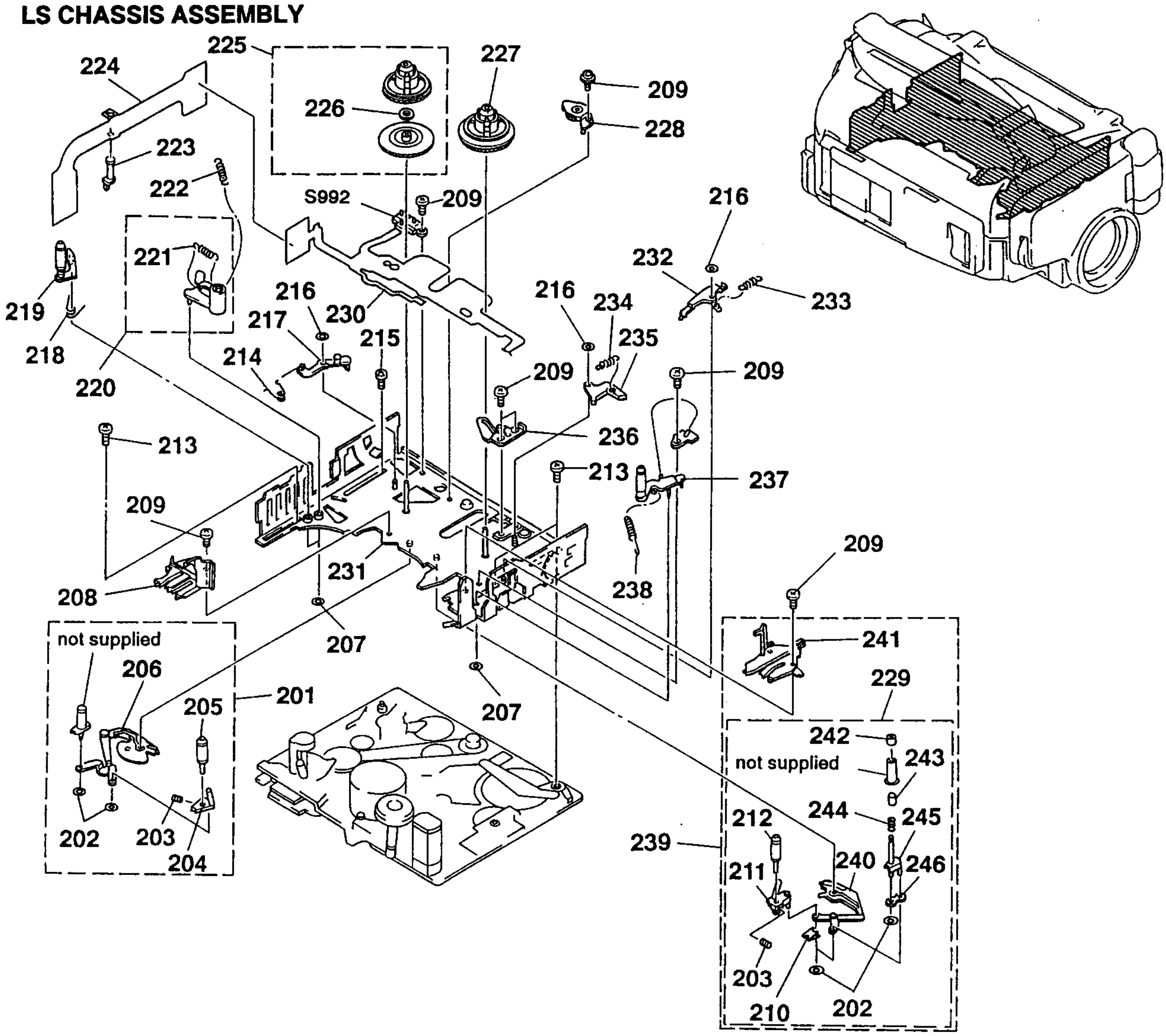
Ref. No.	Part No.	Description	Remark
* 101	X-3941-906-1	HOLDER (UPPER) ASSY, MD	
* 102	X-3941-907-1	HOLDER (LOWER) ASSY, MD	
103	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
* 104	X-3941-908-1	FRAME (FRONT) ASSY	
105	3-713-786-51	SCREW (M2X3)	
* 106	3-949-022-01	FRAME (REAR)	
107	A-7071-738-A	EZ-3 BOARD, COMPLETE	
108	3-952-205-01	GUIDE, TERMINAL BOARD	
109	A-7063-403-A	VC-129 BOARD, COMPLETE	
* 110	3-949-011-01	CASE (A), SHIELD, RP	
* 111	3-949-023-01	CASE (B), SHIELD, RP	
* 112	1-646-828-11	DB-10 BOARD	
113	A-7071-734-A	LD-63 BOARD, COMPLETE	
114	A-7063-401-A	DD-54 BOARD, COMPLETE	
* 115	X-3941-909-1	CASE ASSY, SHIELD, DD	
* 116	X-3942-190-1	LID ASSY, DD SHIELD CASE	
117	A-7063-402-A	AU-146 BOARD, COMPLETE	
118	1-644-941-11	FP-540 FLEXIBLE BOARD	
* 119	3-950-358-01	LID, RP CONNECTOR	
120	1-644-943-11	FP-550 FLEXIBLE BOARD	
121	1-644-947-11	FP-537 FLEXIBLE BOARD	
122	3-719-845-01	SCREW (B2X4), TAPPING	
123	8-848-700-01	DEVICE, LENS LSV-100A	
124	A-7071-733-A	CD-101 BOARD, COMPLETE	
125	3-719-601-01	SCREW (B2X5), TAPPING	
126	3-947-268-11	SCREW (B TIGHT)(2X7.5), TAPPING	
* 127	3-949-025-01	HEAT SINK, CD	
128	3-949-283-01	RUBBER (2), SEAL	
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
130	3-949-282-01	ADAPTOR (EM), CCD FITTING	
131	3-951-443-01	CUSHION (A), LENS	
132	3-951-869-01	SHEET, FRONT	
133	3-951-871-01	SPACER, LD	
134	3-719-381-01	SCREW (M2X4)	
135	3-951-878-01	CUSHION, D FLEXIBLE	
136	3-951-879-01	CUSHION	
IC721	A-7030-371-A	CCD BLOCK ASSY (AUTO) (ICX059AK-2) (CCD IMAGER)	
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	

5-4. CASSETTE COMPARTMENT HOLDER ASSEMBLY


152
153
# 3
154
151
155
161
158
162
159
163
156
164
168
157
# 3
165
167
166
160
170
169
170
173
170
170
176
172
170
175
179
178
171
170
182
174
170
181
176
not supplied
180
177
S991
170

Ref. No.	Part No.	Description	Remark
151	A-7040-255-A	HOLDER BLOCK ASSY (L)	
152	3-739-872-01	SPRING, TENSION	
153	X-3940-677-1	ARM (T) ASSY (L), F	
154	3-728-145-01	BEARING (T), MIDWAY GEAR	
155	X-3940-680-1	HOLDER ASSY (L)	
156	3-728-146-01	BEARING (S), MIDWAY GEAR	
157	3-739-808-01	PLATE (2), ADJUSTMENT, C ARM	
158	3-739-873-01	SPRING, TENSION	
159	X-3940-678-1	ARM (S) ASSY (L), F	
160	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
161	X-3727-920-1	GEAR ASSY, MIDWAY	
162	X-3739-809-1	DAMPER ASSY (2)	
163	X-3940-991-1	PROTECTOR ASSY (2), T	
164	3-749-304-01	WASHER, STOPPER	
165	3-728-277-01	BAR, JOINT	
166	3-331-007-11	WASHER	
167	A-7040-164-A	ARM BLOCK ASSY, TP	
168	3-509-127-00	SPRING, TENSION	
169	3-951-964-01	BASE, LED	
170	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
171	3-943-055-01	FRAME (L), LS	
172	X-3940-675-1	BASE ASSY (L), RL	
173	3-943-701-01	LABEL, CAUTION	
174	3-727-957-01	HOLDER (S), SENSOR	
175	3-727-954-01	HOLDER (T), SENSOR	
176	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
177	3-727-946-01	SUPPORT, LS	
178	X-3727-926-1	ARM ASSY, GEAR	
179	3-315-414-31	WASHER	
180	A-7040-264-D	ROLLER BLOCK ASSY, HC	
181	3-321-393-11	WASHER, STOPPER	
182	3-943-439-02	SPRING, TORSION	
S991	1-572-611-11	SWITCH, LEAF (C LOCK)	

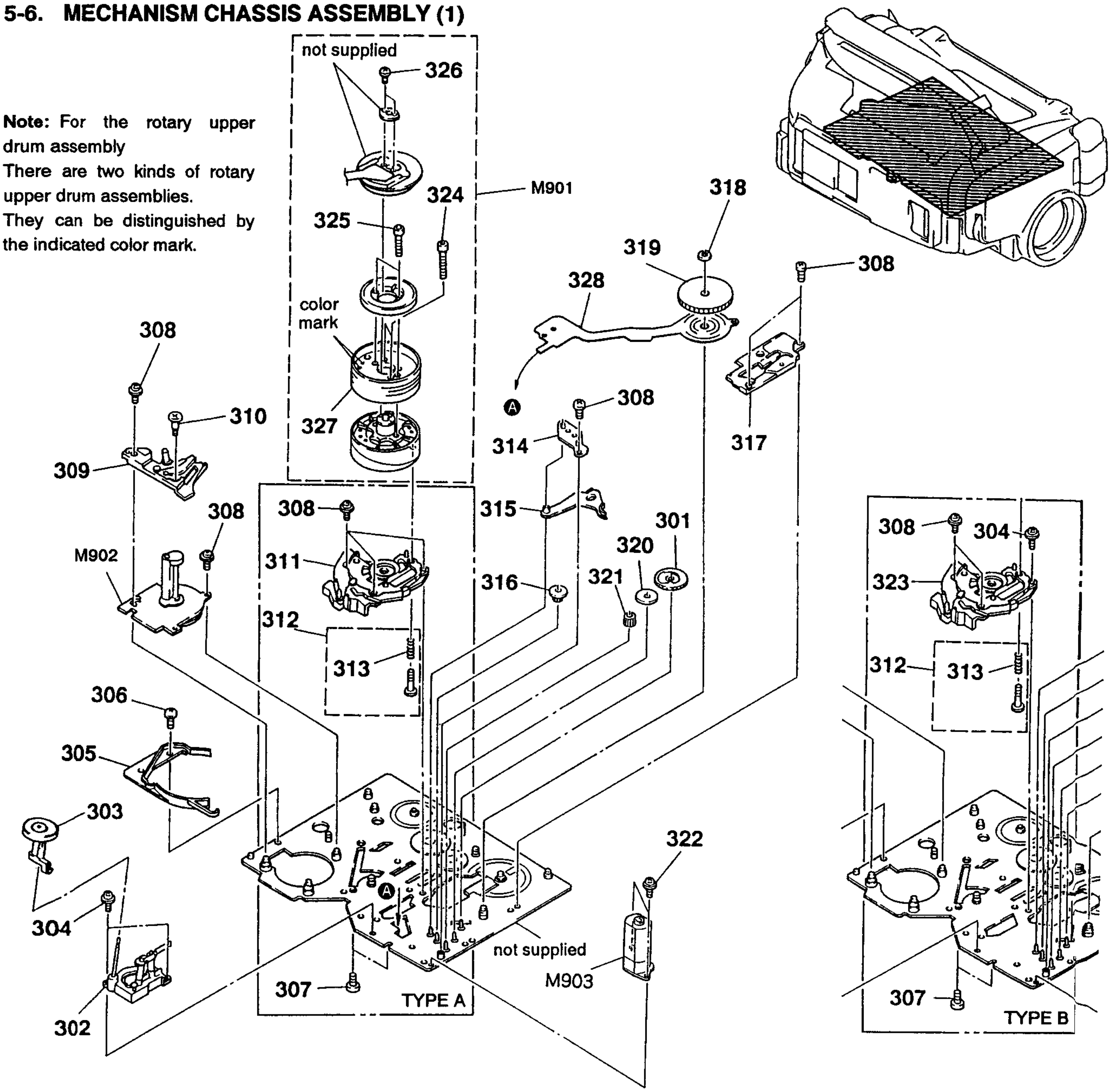
5-5. LS CHASSIS ASSEMBLY


225
224
227
209
226
228
223
222
S992
209
216
221
232
216
233
219
216
230
234
217
215
235
218
214
209
209
220
213
236
213
237
209
208
231
238
209
not supplied
206
207
241
205
201
229
207
242
not supplied
243
244
245
212
239
240
246
211
202
203
204
203
210
202

Ref. No.	Part No.	Description	Remark
201	A-7040-148-A	ARM (T) BLOCK ASSY, GUIDE	
202	3-331-007-11	WASHER	
203	3-728-290-01	SCREW (M1.2)	
204	X-3727-947-1	BASE ASSY, TG7	
205	X-3727-994-1	ROLLER ASSY, TG8	
206	X-3727-940-1	ARM (T) ASSY, GUIDE	
207	3-315-414-31	WASHER	
208	3-728-244-01	RAIL (T), GUIDE	
209	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
210	3-728-062-01	SPRING (6GB), LEAF	
211	X-3727-948-1	BASE ASSY, TG6	
212	X-3940-733-1	ROLLER ASSY (3), TG5	
213	3-941-601-01	SCREW (M1.4X2.5), SPECIAL HEAD	
214	3-732-068-01	SPRING (JD), RATCHET	
215	3-732-085-01	SCREW (1.2X1.6), SPECIAL HEAD	
216	3-728-091-01	WASHER, STOPPER	
217	X-3728-005-1	RATCHET ASSY (JD), T	
218	3-727-939-01	SPRING (JD), TORSION	
219	A-7040-252-A	ARM BLOCK ASSY (L), TG11	
220	A-7040-240-A	ARM BLOCK ASSY (JD), PINCH	
221	3-727-927-01	SPRING (POWER TENSION), TENSION	
222	3-732-089-01	SPRING (JD), TENSION	
223	3-739-807-01	SHAFT (2), FLEXIBLE ROTARY	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
225	X-3727-951-2	TABLE ASSY, REEL, TAKE-UP	
226	3-701-439-11	WASHER	
227	X-3727-952-1	TABLE ASSY, REEL, SUPPLY	
228	X-3727-914-4	CLUTCH ASSY, ONEWAY	
229	A-7040-262-C	ARM (S) BLOCK ASSY (3), GUIDE	
230	A-7062-792-A	FP-423 BLOCK ASSY	
231	X-3940-681-3	CHASSIS ASSY (L), LS	
232	3-732-077-01	RATCHET (JD), S	
233	3-732-076-01	SPRING (JD), TENSION	
234	3-732-078-01	SPRING (JD), TENSION	
235	3-732-079-01	ARM (JD), S SOFT	
236	3-728-206-01	PLATE, CAM, LS	
237	X-3749-001-1	ARM ASSY (JD), TG1	
238	3-940-616-03	SPRING (JD), TENSION	
239	A-7040-263-A	RAIL(S)BLOCK ASSY(3)(JD),GUIDE	
240	X-3727-941-1	ARM (S) ASSY, GUIDE	
241	3-728-226-01	RAIL (S) (JD), GUIDE	
242	3-943-822-01	FLANGE (P), TG4 UPPER	
243	3-728-048-01	SLEEVE, TG4	
244	3-728-023-01	SPRING, COMPRESSION	
245	X-3727-936-2	BASE ASSY, TG4	
246	3-728-053-01	PLATE, UNDER, TG4	
S992	1-572-802-12	SWITCH, PUSH (3 KEY)	(REC PROOF, ME/MP, Hi8 MP)

5-6. MECHANISM CHASSIS ASSEMBLY (1)

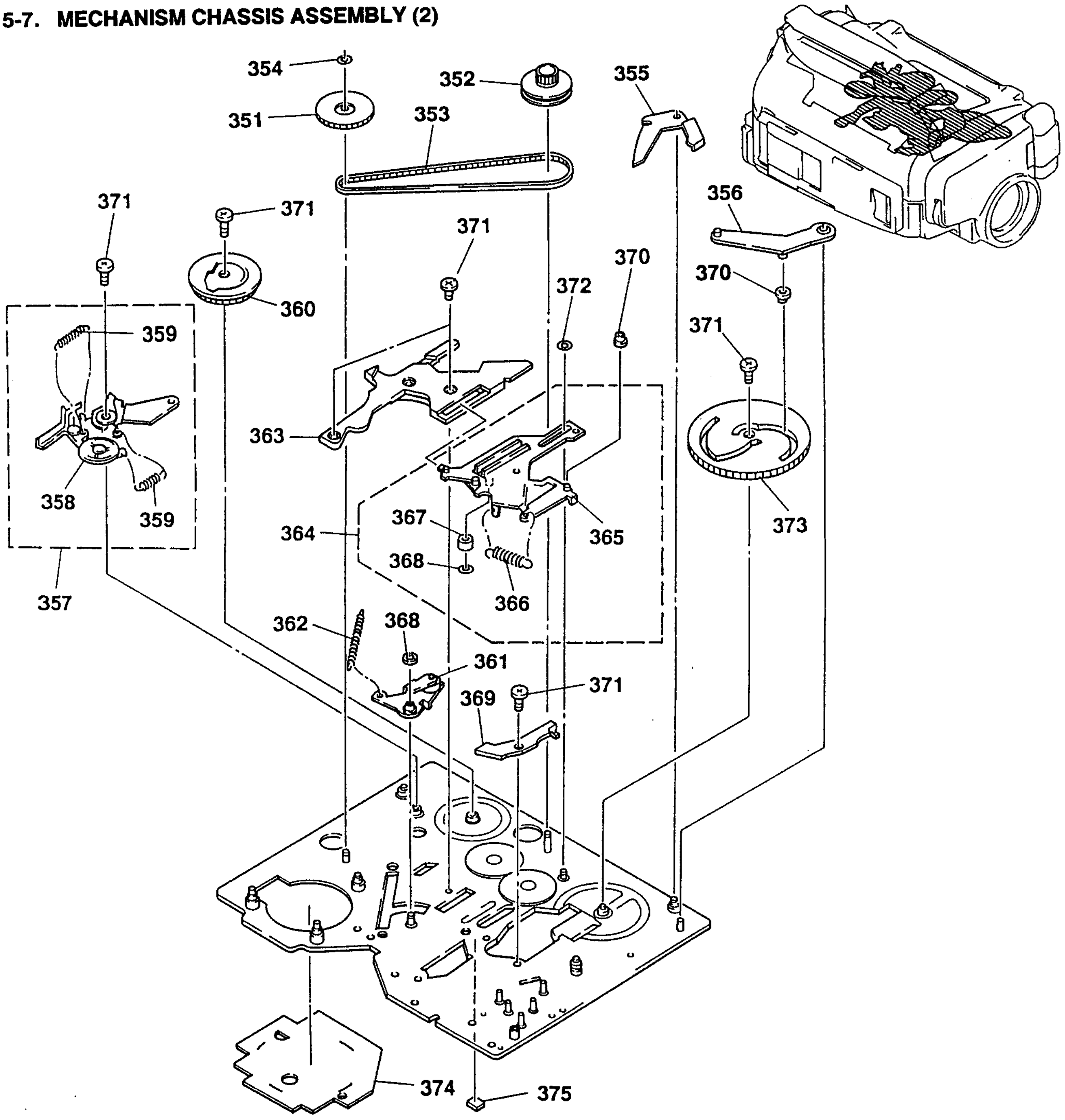
Note: For the rotary upper drum assembly
There are two kinds of rotary upper drum assemblies.
They can be distinguished by the indicated color mark.



not supplied
326
324
M901
325
color mark
327
318
319
328
308
317
314
310
309
308
M902
308
311
315
320
301
316
321
312
313
306
305
303
304
302
322
not supplied
M903
307
TYPE A
304
323
312
313
307
TYPE B

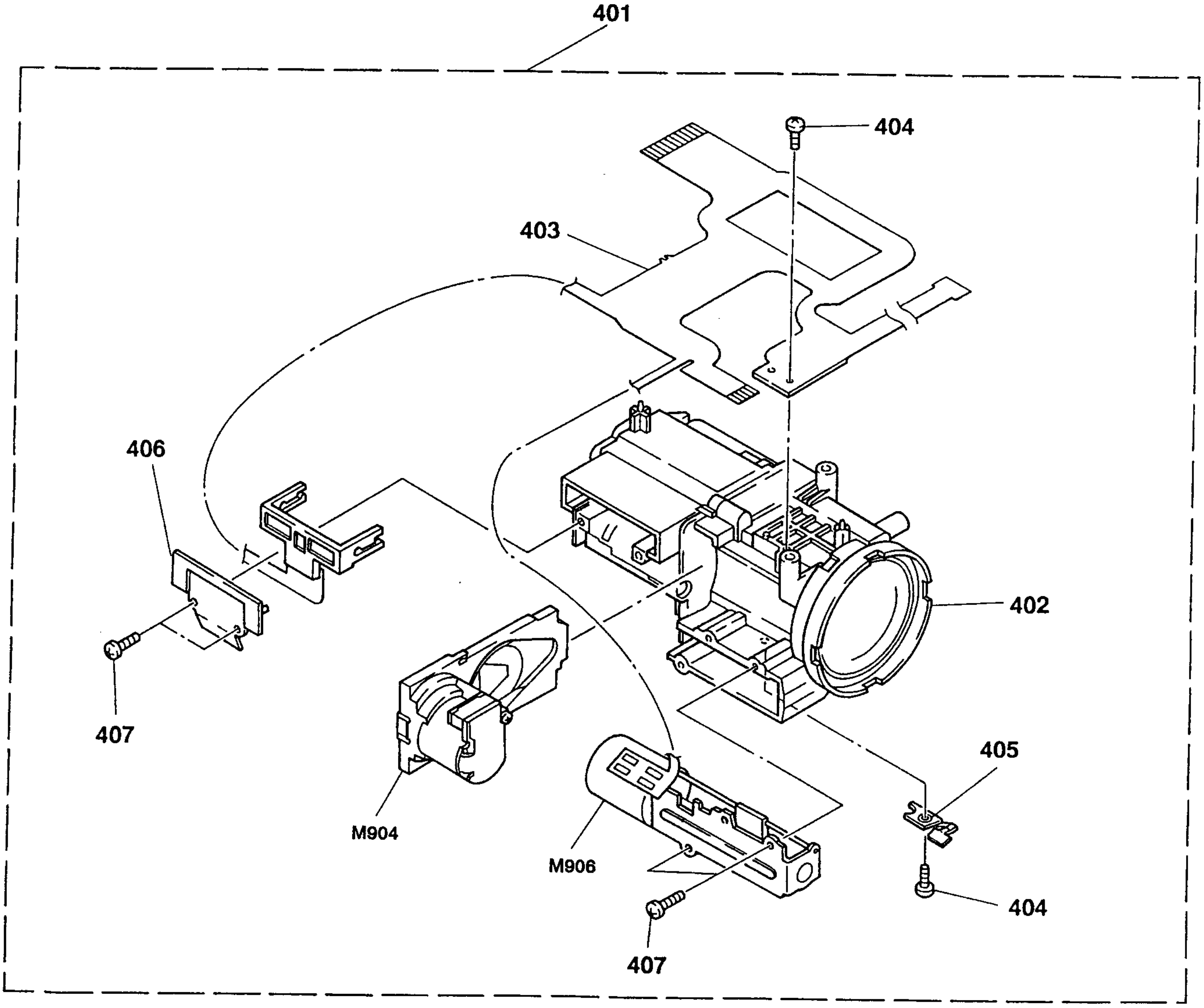
Ref. No.	Part No.	Description	Remark
301	3-728-189-02	GEAR, NO. 3	
302	X-3941-929-1	RAIL (BASE) (1) ASSY (B), GUIDE	
303	X-3941-930-1	ROLLER ASSY, IP	
304	3-703-816-51	SCREW (M1. 4X3. 5), SPECIAL HEAD	
305	3-732-064-01	COVER, ROTOR	
306	3-728-126-01	SCREW (M1. 4X2), SPECIAL HEAD	
307	3-728-108-01	SCREW (M1. 4X4. 5)	
308	3-728-148-11	SCREW (M1. 4X2. 5), SPECIAL HEAD	
309	X-3941-027-2	RAIL (BASE) (3) ASSY (3), GUIDE	
310	3-732-084-01	SCREW (M1. 4), SPECIAL HEAD	
* 311	A-7040-222-D	BASE (M) BLOCK ASSY, DRUM (TYPE A)	
312	X-3728-009-2	SCREW ASSY, FITTING	
313	3-743-633-01	SPRING, COMPRESSION	
314	3-728-119-01	RETAINER, GEAR	
315	X-3727-906-1	ARM ASSY	
316	X-3727-903-1	GEAR ASSY, NO. 1	
317	3-728-231-06	BASE, TG-1 CAM	
318	3-579-788-01	WASHER, STOPPER	
319	X-3727-915-1	GEAR ASSY, MODE	
320	X-3727-904-1	GEAR ASSY, NO. 2	
321	3-728-149-01	GEAR, NO. 0	
322	3-732-087-31	SCREW (M1. 4X1. 8), SPECIAL HEAD	
* 323	A-7040-203-G	BASE (A) BLOCK ASSY, DRUM (TYPE B)	
324	3-727-809-02	SCREW (M1. 4X5), HEXAGON HOLE	
325	3-727-807-03	SCREW (M1. 7X3. 3), HEXAGON HOLE	
326	3-728-108-41	SCREW (M1. 4X2. 7)	
327	A-7049-461-A	DRUM ASSY, UPPER ROTARY (DGR-80-R-(1)) (COLOR MARK; GREEN, GREEN/RED, BLACK, BLACK/RED)	
327	A-7049-464-A	DRUM ASSY, UPPER ROTARY (DGR-80-R-(2)) (COLOR MARK; RED, RED/RED, BLUE, BLUE/RED)	
328	1-645-056-12	FP-573 FLEXIBLE BOARD	
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80B-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	

5-7. MECHANISM CHASSIS ASSEMBLY (2)


354
352
355
351
353
371
371
356
371
370
370
372
360
359
371
363
373
358
367
365
359
364
368
366
357
362
368
361
369
371
374
375

Ref.No.	Part No.	Description	Remark
351	X-3727-930-1	GEAR ASSY, CONVERSION	
352	X-3727-931-1	PULLEY ASSY, MIDWAY	
353	3-728-212-01	BELT, RELAY	
354	3-728-091-01	WASHER, STOPPER	
355	3-728-154-01	ARM, EJ	
356	3-941-980-01	ARM (T), LS	
357	A-7040-152-A	ARM BLOCK ASSY, PINCH PRESS	
358	X-3940-335-1	ARM ASSY, PINCH PRESS	
359	3-728-065-01	SPRING, TENSION	
360	3-728-190-01	CAM (B)	
361	X-3727-924-2	ARM ASSY, GUIDE LOCK	
362	3-728-015-01	SPRING (POWER TENSION),TENSION	
363	3-728-228-03	SUPPORT (T), GL	
364	A-7040-153-A	SLIDER BLOCK ASSY, GL	
365	X-3941-931-1	SLIDER ASSY, GL	
366	3-727-929-01	SPRING (POWER TENSION),TENSION	
367	3-728-144-01	ROLLER, GL	
368	3-331-007-11	WASHER	
369	3-728-213-01	SUPPORT (S), GL	
370	3-728-109-01	ROLLER, LS	
371	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
372	3-315-384-31	WASHER, STOPPER	
373	3-942-925-01	CAM (A) (L)	
374	3-942-901-01	COVER (L), CAPSTAN	
375	3-743-634-01	SPACER, RUBBER	

5-8. LENS DEVICE ASSEMBLY (LSV-100A)



Ref. No.	Part No.	Description	Remark
401	8-848-700-01	DEVICE, LENS LSV-100A	
402	A-4910-494-A	LSV-100 OPTICS ASSY (RP)	
403	A-4910-479-A	FLEXIBLE BLOCK ASSY, M	
404	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
405	2-626-179-01	HOLDER, Z END	
406	2-626-144-01	RETAINER, MR	
407	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
M904	1-547-574-11	IRIS (IRX-002)	
M906	8-835-491-01	MOTOR, STEPPING (SPB-01S01N) (ZOOM)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Addresses have been displayed according to the numbers of diagrams in the Electrical Parts List on the VC-129 board.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description				Remark
	A-7063-402-A	AU-146 BOARD, COMPLETE ***********************				
						(Ref. No 3,000 Series)
		< CAPACITOR >				
C801	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V	
C802	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C803	1-164-346-11	CERAMIC CHIP	1uF		16V	
C804	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C805	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C806	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C807	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	
C808	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C809	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C810	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C811	1-135-334-11	TANTAL. CHIP	100uF	20%	6.3V	
C812	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V	
C814	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C815	1-135-336-11	TANTAL. CHIP	47uF	20%	6.3V	
C816	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C817	1-135-254-11	TANTAL. CHIP	47uF	20%	4V	
C818	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C819	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C820	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C821	1-162-977-11	CERAMIC CHIP	0.0018uF	10%	50V	
C823	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C824	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V	
C825	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	
C826	1-164-910-11	CERAMIC CHIP	47PF	5%	16V	
C827	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C828	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C829	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C830	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	
C831	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C832	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V	
C833	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C834	1-164-346-11	CERAMIC CHIP	1uF		16V	
C835	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C836	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C837	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C838	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	
C839	1-164-926-11	CERAMIC CHIP	220PF	5%	16V	
C840	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C841	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C843	1-135-335-11	TANTAL. CHIP	100uF	20%	4V	
C844	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C845	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V	
C846	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C847	1-135-336-11	TANTAL. CHIP	47uF	20%	6.3V	
C849	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C850	1-135-254-11	TANTAL. CHIP	47uF	20%	4V	
C851	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C852	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C853	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C854	1-162-977-11	CERAMIC CHIP	0.0018uF	10%	50V	
C856	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C857	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V	
C858	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	
C859	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C860	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C861	1-164-910-11	CERAMIC CHIP	47PF	5%	16V	
C862	1-164-916-11	CERAMIC CHIP	82PF	5%	16V	
C863	1-164-346-11	CERAMIC CHIP	1uF		16V	
C864	1-164-346-11	CERAMIC CHIP	1uF		16V	
C865	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C866	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C867	1-135-202-21	TANTAL. CHIP	22uF	20%	4V	
C869	1-135-335-11	TANTAL. CHIP	100uF	20%	4V	
C870	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C873	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C874	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C875	1-164-346-11	CERAMIC CHIP	1uF		16V	
C876	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C877	1-164-346-11	CERAMIC CHIP	1uF		16V	
C878	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C879	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V	
C880	1-135-202-21	TANTAL. CHIP	22uF	20%	4V	
C881	1-135-334-11	TANTAL. CHIP	100uF	20%	6.3V	
C882	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C883	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C884	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C885	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C886	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C887	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C888	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C889	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C890	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	

AU-146

Ref. No.	Part No.	Description				Remark
C891	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C892	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C893	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C894	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C895	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	
C896	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	
		< CONNECTOR >				
CN801	1-695-323-21	CONNECTOR, BOARD TO BOARD				
CN802	1-691-346-11	CONNECTOR, FFC/FPC 8P				
		< FILTER >				
FL801	1-239-350-11	FILTER, BAND PASS (1.5MHz)				
FL802	1-239-351-11	FILTER, BAND PASS (1.7MHz)				
		< IC >				
IC801	8-759-823-19	IC	CXA1488R			
IC802	8-759-075-68	IC	TC4066BFS			
IC803	8-759-823-21	IC	CXA1536Q			
IC804	8-759-823-19	IC	CXA1488R			
		< TRANSISTOR >				
Q801	8-729-427-72	TRANSISTOR	XP4501			
Q802	8-729-427-46	TRANSISTOR	XP4213			
Q803	8-729-427-72	TRANSISTOR	XP4501			
Q804	8-729-427-72	TRANSISTOR	XP4501			
Q805	8-729-425-50	TRANSISTOR	2SB1462-Q			
Q806	8-729-429-50	TRANSISTOR	XP4312			
Q807	8-729-427-70	TRANSISTOR	XP4401			
Q808	8-729-428-51	TRANSISTOR	XP6215			
Q809	8-729-429-22	TRANSISTOR	UN9215-QRS			
		< RESISTOR >				
R801	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R802	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R803	1-218-972-11	METAL GLAZE	39K	5%	1/16W	
R804	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R805	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R806	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R807	1-218-942-11	METAL GLAZE	120	5%	1/16W	
R811	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R812	1-220-398-11	METAL GLAZE	1.5M	5%	1/16W	
R814	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R815	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W	
R816	1-218-933-11	METAL GLAZE	22	5%	1/16W	
R817	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R818	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R819	1-218-972-11	METAL GLAZE	39K	5%	1/16W	
R820	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R821	1-218-965-11	METAL GLAZE	10K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R822	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R823	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R824	1-218-942-11	METAL GLAZE	120	5%	1/16W	
R828	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R829	1-220-398-11	METAL GLAZE	1.5M	5%	1/16W	
R830	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R832	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R833	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R834	1-218-981-11	METAL GLAZE	220K	5%	1/16W	
R835	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W	
R836	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R837	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R838	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R839	1-218-951-11	METAL GLAZE	680	5%	1/16W	
R840	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R841	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R842	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R843	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R844	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R845	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R846	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R847	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R848	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R849	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R850	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R851	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W	
R852	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R853	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R854	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R855	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W	
R856	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R857	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R858	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R859	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R860	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W	
R861	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R862	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R863	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R864	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R865	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R866	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R867	1-218-981-11	METAL GLAZE	220K	5%	1/16W	
R868	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R870	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R871	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R872	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R873	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R874	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R875	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R876	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	

Ref. No.	Part No.	Description	Remark
R877	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R878	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R879	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R880	1-218-987-11	METAL GLAZE 680K 5% 1/16W	
R881	1-218-987-11	METAL GLAZE 680K 5% 1/16W	

****

A-7071-733-A CD-101 BOARD, COMPLETE
****
(Ref. No 1,000 Series)

< CAPACITOR >

C721	1-135-214-21	TANTAL. CHIP 4.7uF 20% 20V	
C722	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C723	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	
C724	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C725	1-162-637-11	CERAMIC CHIP 0.47uF 16V	
C726	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C727	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C728	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C729	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C730	1-164-156-11	CERAMIC CHIP 0.1uF 25V	

< DIODE >

D721	8-719-421-71	DIODE MA132WA	
D722	8-719-421-69	DIODE MA133	
D723	8-719-421-71	DIODE MA132WA	

< COIL >

L721	1-412-032-11	INDUCTOR CHIP 100uH	

< TRANSISTOR >

Q721	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q722	8-729-429-44	TRANSISTOR XP1501	
Q723	8-729-232-86	TRANSISTOR 2SK1875	
Q724	8-729-102-07	TRANSISTOR 2SC2223-F13	

< RESISTOR >

R723	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R724	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R725	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R726	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R727	1-218-952-11	METAL GLAZE 820 5% 1/16W	
R728	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R729	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R730	1-218-982-11	METAL GLAZE 270K 5% 1/16W	
R731	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R732	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R733	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R734	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description	Remark
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	

****

1-646-828-11 DB-10 BOARD (Ref. No 4,000 Series)
****

< CAPACITOR >

C001	1-164-156-11	CERAMIC CHIP 0.1uF 25V	

< DIODE >

D001	8-719-023-31	DIODE MA720-TX	

< TRANSISTOR >

Q001	8-729-402-84	TRANSISTOR XN4601	

< RESISTOR >

R001	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R002	1-218-738-11	METAL CHIP 82K 0.50% 1/16W	
R003	1-216-841-11	METAL CHIP 47K 5% 1/16W	

****

A-7063-401-A DD-54 BOARD, COMPLETE
****
(Ref. No 9,000 Series)

< CAPACITOR >

C351	1-135-340-11	TANTAL. CHIP 10uF 20% 20V	
C352	1-135-340-11	TANTAL. CHIP 10uF 20% 20V	
C353	1-135-340-11	TANTAL. CHIP 10uF 20% 20V	
C354	1-137-307-11	FILM CHIP 470PF 2% 16V	
C355	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C356	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C357	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C358	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C359	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C360	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C361	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C362	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C363	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C364	1-164-730-11	CERAMIC CHIP 0.0012uF 10% 50V	
C365	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C366	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C367	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C368	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C369	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C370	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C371	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	

DD-54

Ref. No.	Part No.	Description	Remark
C372	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C373	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C374	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C375	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C376	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C377	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C378	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C379	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C380	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C381	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C382	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C383	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C384	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C385	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C386	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C387	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C388	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C389	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C390	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C391	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C392	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C393	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C394	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C395	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C396	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C397	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C398	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN351	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN352	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D351	8-719-027-77	DIODE MA796	

< IC >

Ref. No.	Part No.	Description	Remark
IC351	8-759-060-94	IC MB3785APFV-G-BND-ER	
IC352	8-759-062-00	IC MB3788PFV	

< COIL >

Ref. No.	Part No.	Description	Remark
L355	1-424-673-11	COIL, CHOKE 4.7uH	
L356	1-424-674-11	COIL, CHOKE 22uH	
L357	1-424-674-11	COIL, CHOKE 22uH	
L358	1-424-653-11	COIL, CHOKE 10uH	
L359	1-424-653-11	COIL, CHOKE 10uH	
L360	1-424-674-11	COIL, CHOKE 22uH	
L361	1-424-674-11	COIL, CHOKE 22uH	
L362	1-424-675-11	COIL, CHOKE 33uH	
L363	1-412-027-11	INDUCTOR CHIP 2.2uH	
L364	1-414-118-11	INDUCTOR 4.7uH	
L365	1-412-028-11	INDUCTOR CHIP 4.7uH	
L366	1-412-033-11	INDUCTOR CHIP 220uH	
L367	1-412-033-11	INDUCTOR CHIP 220uH	
L368	1-412-027-11	INDUCTOR CHIP 2.2uH	
L369	1-412-028-11	INDUCTOR CHIP 4.7uH	
L370	1-412-028-11	INDUCTOR CHIP 4.7uH	
L371	1-412-028-11	INDUCTOR CHIP 4.7uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q351	8-729-823-95	TRANSISTOR FC149	
Q352	8-729-823-82	TRANSISTOR FP101	
Q353	8-729-823-82	TRANSISTOR FP101	
Q354	8-729-804-41	TRANSISTOR 2SB1122-S	
Q355	8-729-823-84	TRANSISTOR FP102	
Q356	8-729-823-84	TRANSISTOR FP102	
Q357	8-729-823-82	TRANSISTOR FP101	
Q358	8-729-017-10	TRANSISTOR 2SJ244JY	
Q360	8-729-428-88	TRANSISTOR UN9113	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R351	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R352	1-218-707-11	METAL CHIP 4.3K 0.50% 1/16W	
R353	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R354	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R355	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R356	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R357	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R360	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R361	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R362	1-218-714-11	METAL CHIP 8.2K 0.50% 1/16W	
R363	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R364	1-218-721-11	METAL CHIP 16K 0.50% 1/16W	
R365	1-218-979-11	METAL GLAZE 150K 5% 1/16W	
R366	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R367	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R368	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R369	1-216-804-11	METAL CHIP 39 5% 1/16W	
R370	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R371	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R372	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R373	1-218-727-11	METAL CHIP 30K 0.50% 1/16W	
R374	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R375	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R376	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R377	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R378	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R379	1-218-295-11	METAL CHIP 5.6K 0.50% 1/16W	
R380	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R381	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R382	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R383	1-216-819-11	METAL CHIP 680 5% 1/16W	
R384	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R387	1-218-704-11	METAL CHIP 3.3K 0.50% 1/16W	
R388	1-216-033-00	METAL CHIP 220 5% 1/10W	
R389	1-216-033-00	METAL CHIP 220 5% 1/10W	
R390	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R391	1-216-041-00	METAL CHIP 470 5% 1/10W	
R392	1-216-041-00	METAL CHIP 470 5% 1/10W	
R393	1-216-041-00	METAL CHIP 470 5% 1/10W	
R394	1-216-041-00	METAL CHIP 470 5% 1/10W	
R395	1-216-009-00	METAL CHIP 22 5% 1/10W	
R396	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R397	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R398	1-218-960-11	METAL GLAZE 3.9K 5% 1/16W	
R399	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R400	1-218-953-11	METAL GLAZE 1K 5% 1/16W	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T351	1-450-976-11	TRANSFORMER, CONVERTER	

****

A-7071-738-A EZ-3 BOARD, COMPLETE

****

(Ref. No 3,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C101	1-164-361-11	CERAMIC CHIP 0.047uF 16V	
C104	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C105	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C151	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
C152	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C153	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C154	1-135-210-11	TANTALUM CHIP 4.7uF 20% 10V	
C155	1-135-210-11	TANTALUM CHIP 4.7uF 20% 10V	
C156	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
C161	1-164-361-11	CERAMIC CHIP 0.047uF 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN111	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN112	1-573-926-11	CONNECTOR, FFC/FPC (ZIF) 17P	
CN113	1-537-439-11	TARMINAL BOARD, CONNECTOR	

< DIODE >

Ref. No.	Part No.	Description	Remark
D101	8-719-420-14	DIODE MA8082-M	
D102	8-719-420-14	DIODE MA8082-M	
D103	8-719-420-14	DIODE MA8082-M	
D104	8-719-420-14	DIODE MA8082-M	
D105	8-719-420-14	DIODE MA8082-M	
D106	8-719-420-14	DIODE MA8082-M	
D107	8-719-420-14	DIODE MA8082-M	
D108	8-719-420-14	DIODE MA8082-M	
D109	8-719-420-90	DIODE MA8051-M	
D110	8-719-422-97	DIODE MA8091-M	
D111	8-719-404-46	DIODE MA110	
D112	8-719-420-14	DIODE MA8082-M	
D113	8-719-420-90	DIODE MA8051-M	
D114	8-719-404-46	DIODE MA110	

< IC >

Ref. No.	Part No.	Description	Remark
IC101	8-759-075-97	IC LM358PW	

< COIL >

Ref. No.	Part No.	Description	Remark
L161	1-414-117-11	INDUCTOR 1uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q100	8-729-429-18	TRANSISTOR UN9213	
Q101	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q102	8-729-428-88	TRANSISTOR UN9113	
Q103	8-729-429-18	TRANSISTOR UN9213	
Q104	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q105	8-729-429-18	TRANSISTOR UN9213	
Q106	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q107	8-729-429-02	TRANSISTOR UN9110-QRS	
Q108	8-729-428-88	TRANSISTOR UN9113	
Q109	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q110	8-729-018-47	TRANSISTOR 2SD2443	
Q111	8-729-017-56	TRANSISTOR 2SK2053(1)	
Q112	8-729-017-56	TRANSISTOR 2SK2053(1)	
Q113	8-729-428-88	TRANSISTOR UN9113	
Q114	8-729-429-18	TRANSISTOR UN9213	
Q115	8-729-429-18	TRANSISTOR UN9213	
Q116	8-729-429-18	TRANSISTOR UN9213	
Q117	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q118	8-729-429-32	TRANSISTOR UN9210-QRS	
Q151	8-729-425-73	TRANSISTOR 2SC4627-C	
Q152	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q153	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q154	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q155	8-729-429-18	TRANSISTOR UN9213	
Q156	8-729-429-18	TRANSISTOR UN9213	
Q161	8-729-427-70	TRANSISTOR XP4401	
Q162	8-729-101-07	TRANSISTOR 2SB798-DL	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R101	1-218-985-11	METAL GLAZE 470K 5% 1/16W	
R102	1-218-985-11	METAL GLAZE 470K 5% 1/16W	
R103	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R104	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R105	1-218-973-11	METAL GLAZE 47K 5% 1/16W	

Ref.No.	Part No.	Description				Remark
R106	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R107	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R108	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R109	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R110	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R111	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R112	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R114	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R115	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R116	1-218-956-11	METAL GLAZE	1.8K	5%		
R117	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R118	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R119	1-218-941-11	METAL GLAZE	100	5%	1/16W	
R120	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R121	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R122	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R123	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R124	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R125	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R126	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R127	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R128	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R129	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R130	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R133	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R134	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R151	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R152	1-218-952-11	METAL GLAZE	820	5%	1/16W	
R152	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R153	1-218-947-11	METAL GLAZE	330	5%	1/16W	
R154	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R155	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R156	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R157	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R158	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R159	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R161	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R162	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R163	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R164	1-216-791-11	METAL CHIP	3.3	5%	1/16W	
R165	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R166	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R167	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R168	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R169	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R170	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R171	1-218-941-11	METAL GLAZE	100	5%	1/16W	
R172	1-218-941-11	METAL GLAZE	100	5%	1/16W	

< FLEXIBLE BOARD >

Ref.No.	Part No.	Description	Remark
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	

****

A-7062-792-A FP-423 BLOCK ASSY (Ref. No 4,000 Series)
****

Ref.No.	Part No.	Description	Remark
	3-727-954-01	HOLDER (T), SENSOR	
	3-727-957-01	HOLDER (S), SENSOR	
	3-732-046-01	HOLDER, LED	

< DIODE >

Ref.No.	Part No.	Description	Remark
D991	8-719-988-42	DIODE GL453S	

< ELEMENT HALL >

Ref.No.	Part No.	Description	Remark
H991	1-808-448-11	ELEMENT HALL (CHIP TYPE)	
H992	1-808-448-11	ELEMENT HALL (CHIP TYPE)	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q991	8-729-907-25	TRANSISTOR PT4850F	
Q992	8-729-907-25	TRANSISTOR PT4850F	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R991	1-216-817-11	METAL CHIP	470	5%	1/16W	
R992	1-216-817-11	METAL CHIP	470	5%	1/16W	
R993	1-216-817-11	METAL CHIP	470	5%	1/16W	
R994	1-216-817-11	METAL CHIP	470	5%	1/16W	

< SWITCH >

Ref.No.	Part No.	Description	Remark
S991	1-572-611-11	SWITCH, LEAF (CASSETTE LOCK)	
S992	1-572-802-12	SWITCH, PUSH (3 KEY)	

****

A-7071-739-A FU-111 BOARD, COMPLETE
****
(Ref. No 9,000 Series)

< IC LINK >

Ref.No.	Part No.	Description	Remark
⚠PS081	1-532-840-21	LINK, IC	
⚠PS082	1-532-840-21	LINK, IC	
⚠PS083	1-532-840-21	LINK, IC	

****

A-7071-734-A LD-63 BOARD, COMPLETE
****
(Ref. No 3,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description			Remark
C751	1-164-947-11	CERAMIC CHIP	0.01uF	16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
C752	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C753	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C754	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C755	1-164-346-11	CERAMIC CHIP 1uF 16V	
C756	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C757	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C758	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C759	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C760	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C761	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C762	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C763	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C764	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C765	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C766	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C767	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C768	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C769	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C771	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C772	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C773	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C775	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C776	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C777	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C778	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C779	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C780	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C781	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
		< CONNECTOR >	
CN751	1-573-935-11	CONNECTOR, FFC/FPC (ZIF) 26P	
CN752	1-691-539-11	CONNECTOR, BOARD TO BOARD 30P	
		< IC >	
IC751	8-752-841-66	IC CXP80624A-013R	
IC752	8-752-355-56	IC CXD2104BN	
IC753	8-759-058-45	IC NJM3403AV	
IC754	8-759-058-41	IC NJM3416V	
IC755	8-759-059-03	IC LM324PW	
IC756	8-759-058-43	IC NJM3404AV	
IC757	8-759-058-41	IC NJM3416V	
IC758	8-759-058-47	IC MPC1724VM	
		< COIL >	
L751	1-414-078-11	INDUCTOR 10uH	
L752	1-412-991-11	INDUCTOR 10uH	
L753	1-414-078-11	INDUCTOR 10uH	
L754	1-414-078-11	INDUCTOR 10uH	
L755	1-414-078-11	INDUCTOR 10uH	
L756	1-412-991-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q751	8-729-428-88	TRANSISTOR UN9113	
Q752	8-729-425-64	TRANSISTOR 2SD2216-Q	
		< RESISTOR >	
R751	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R752	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R753	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R754	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R755	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R756	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R757	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R758	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R759	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R760	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R761	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R762	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R763	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R764	1-218-983-11	METAL GLAZE 330K 5% 1/16W	
R765	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R766	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R767	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R768	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R769	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R770	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R771	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R772	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R773	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R774	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R775	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R776	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R777	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R778	1-218-987-11	METAL GLAZE 680K 5% 1/16W	
R779	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R780	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R781	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R782	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R783	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R784	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R785	1-218-952-11	METAL GLAZE 820 5% 1/16W	
R786	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R787	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R788	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R789	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R790	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R791	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R792	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R793	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R794	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R796	1-218-990-11	METAL GLAZE 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
		< RES NETWORK >	
RB751	1-236-428-11	NETWORK, RES 22K	
RB752	1-236-424-11	NETWORK, RES 10K	
RB754	1-236-432-11	NETWORK, RES 47K	
		< CRYSTAL >	
X751	1-579-553-11	VIBRATOR (12MHz)	

****

A-7071-735-A MA-164 BOARD, COMPLETE
****
(Ref. No 5,000 Series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C951	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C952	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C953	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C954	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C955	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C956	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C958	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C959	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C960	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C961	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C962	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C963	1-135-336-11	TANTAL. CHIP 47uF 20% 6.3V	
C964	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C965	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C966	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C967	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C968	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C969	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C970	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C971	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C972	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
C973	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
C974	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C975	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C976	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C977	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C978	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C979	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C980	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C981	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C984	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C985	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C986	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C987	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C988	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C990	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C991	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C992	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C993	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C994	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
		< CONNECTOR >	
CN021	1-691-346-11	CONNECTOR, FFC/FPC 8P	
* CN022	1-580-055-21	PIN, CONNECTOR 2P	
* CN023	1-580-055-21	PIN, CONNECTOR 2P	
		< DIODE >	
D981	8-719-404-46	DIODE MA110	
D982	8-719-404-46	DIODE MA110	
		< IC >	
IC981	8-759-084-53	IC CXA1618AN	
IC982	8-759-080-34	IC TA75W01FU	
		< JACK >	
J001	1-691-737-11	JACK, SMALL (MIC PLUG IN POWER)	
J002	1-563-454-11	JACK, MINIATURE (MIC DC OUT)	
J003	1-569-809-11	JACK (SMALL TYPE) (HEADPHONES)	
		< TRANSISTOR >	
Q981	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q985	8-729-015-17	TRANSISTOR 2SC4783-T1L5	
Q986	8-729-015-13	TRANSISTOR 2SA1836-T1M5	
Q990	8-729-010-80	TRANSISTOR FC13	
		< RESISTOR >	
R176	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R177	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R178	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R179	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R180	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R181	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R182	1-218-963-11	METAL GLAZE 6.8K 5% 1/16W	
R183	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R184	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R185	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R186	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R187	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R188	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R189	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R190	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R191	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R192	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R193	1-216-864-11	METAL CHIP 0 5% 1/16W	
R194	1-216-864-11	METAL CHIP 0 5% 1/16W	
R195	1-216-864-11	METAL CHIP 0 5% 1/16W	

VC-129 address display
A • C-5
└► XY axes
└► Side A or Side B

Ref.No.	Part No.	Description				Remark
R196	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R197	1-216-792-11	METAL GLAZE	3.9	5%	1/16W	
R198	1-216-296-00	METAL CHIP	0	5%	1/8W	
R199	1-216-296-00	METAL CHIP	0	5%	1/8W	
R200	1-216-296-00	METAL CHIP	0	5%	1/8W	
R890	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R891	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R892	1-216-295-00	METAL CHIP	0	5%	1/10W	
R893	1-216-295-00	METAL CHIP	0	5%	1/10W	
R980	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R981	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R982	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R983	1-216-296-00	METAL CHIP	0	5%	1/8W	
R984	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R985	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R986	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R987	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R988	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R989	1-218-988-11	METAL GLAZE	820K	5%	1/16W	
R990	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R991	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R992	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R993	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R994	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R995	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R996	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R997	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R998	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R999	1-216-296-00	METAL CHIP	0	5%	1/8W	

****

A-7071-740-A RE-22 BOARD, COMPLETE
****
(Ref. No 4,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description				Remark
C201	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN211	1-691-484-11	CONNECTOR, FFC/FPC 5P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D201	8-719-951-20	LED BR1102W	

< IC >

Ref.No.	Part No.	Description	Remark
IC201	8-749-923-29	IC RS-20E-T	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R201	1-216-041-00	METAL CHIP	470	5%	1/10W	

****

A-7071-736-A RE-23 BOARD, COMPLETE
****
(Ref. No 4,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description				Remark
C251	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN212	1-691-483-21	CONNECTOR, FFC/FPC 4P	

< IC >

Ref.No.	Part No.	Description	Remark
IC251	8-749-923-29	IC RS-20E-T	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R251	1-216-041-00	METAL CHIP	470	5%	1/10W	

****

A-7063-403-A VC-129 BOARD, COMPLETE
****
(Ref. No 2,000 Series)

Ref.No.	Part No.	Description	Remark
*	3-949-011-01	CASE (A), SHIELD, RP	
*	3-949-023-01	CASE (B), SHIELD, RP	

< CAPACITOR >

Ref.No.	(Address)	Part No.	Description				Remark
C001	(A•C-5)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C002	(A•B-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C003	(A•B-5)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V	
C004	(A•A-5)	1-164-872-11	CERAMIC CHIP	82PF	5%	16V	
C005	(A•B-5)	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	
C006	(A•A-5)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V	
C008	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C010	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C012	(B•C-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C013	(B•C-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C015	(A•B-4)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C016	(B•B-4)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C017	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C018	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C019	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C020	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C021	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C022	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C023	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C024	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C026	(B•B-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C027	(B•B-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C028	(A•A-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	

VC-129

VC-129 address display
A • C-5
XY axes
Side A or Side B

Ref. No.	Address	Part No.	Description			Remark
C030	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C031	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C032	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C033	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C034	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C035	(B•B-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C036	(B•B-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C037	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C039	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C041	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C042	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C043	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C044	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C045	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C046	(B•C-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C047	(B•C-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C048	(A•A-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C049	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C050	(B•B-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C051	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C052	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C053	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C054	(A•B-3)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C055	(B•B-3)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C060	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C061	(B•C-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C062	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C063	(B•B-4)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C064	(B•B-4)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C065	(B•B-3)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C066	(B•B-3)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C071	(B•H-4)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C072	(B•H-4)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C073	(B•H-4)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C074	(B•H-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C075	(A•H-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C077	(A•G-2)	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C078	(A•G-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C079	(B•G-2)	1-164-462-11	CERAMIC CHIP	110PF	5%	50V
C080	(B•H-2)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C081	(B•G-2)	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C082	(B•H-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C083	(B•H-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C084	(A•H-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C085	(A•H-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C086	(A•G-3)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C087	(A•H-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C101	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C103	(B•E-1)	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C104	(B•E-1)	1-164-866-11	CERAMIC CHIP	47PF	5%	16V

Ref. No.	Address	Part No.	Description			Remark
C106	(B•D-1)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C107	(B•E-1)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C108	(A•E-1)	1-164-384-11	CERAMIC CHIP	130PF	5%	50V
C109	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C110	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C111	(B•D-1)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C112	(A•E-2)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C113	(B•D-1)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C114	(B•D-2)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C116	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C117	(A•D-2)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C118	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C119	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C120	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C121	(A•D-4)	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C123	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C124	(B•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C126	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C127	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C128	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C129	(B•D-1)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C130	(B•D-2)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C132	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C134	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C137	(A•C-2)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C138	(A•D-3)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C140	(A•C-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C142	(A•C-3)	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C144	(A•C-2)	1-164-238-11	CERAMIC CHIP	36PF	5%	50V
C148	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C149	(B•D-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C150	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C152	(B•D-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C153	(B•D-3)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C154	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C155	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C156	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C157	(B•D-3)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C158	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C159	(B•D-4)	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C160	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C161	(A•C-2)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C162	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C163	(A•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C164	(B•C-1)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C165	(B•C-2)	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C166	(A•C-1)	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C167	(A•C-1)	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C168	(B•C-2)	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C169	(B•D-3)	1-164-860-11	CERAMIC CHIP	27PF	5%	16V

Ref.No.	Address	Part No.	Description			Remark
C170	(B•C-2)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C171	(B•C-3)	1-162-976-11	CERAMIC CHIP	75PF	5%	50V
C172	(B•D-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C173	(B•D-3)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C175	(B•C-1)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C176	(A•C-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C177	(A•C-4)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C201	(B•B-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C202	(A•A-9)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C203	(A•A-9)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C204	(B•B-7)	1-164-346-11	CERAMIC CHIP	1uF		16V
C205	(A•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C206	(B•A-8)	1-164-346-11	CERAMIC CHIP	1uF		16V
C208	(B•A-9)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C209	(B•A-9)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C211	(B•A-7)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C212	(B•A-7)	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C213	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C215	(A•A-6)	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C216	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C217	(B•B-6)	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C218	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C219	(B•A-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C220	(A•A-6)	1-164-346-11	CERAMIC CHIP	1uF		16V
C221	(B•A-6)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C222	(B•B-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C223	(B•A-6)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C224	(A•B-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C225	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C226	(B•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C227	(B•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C228	(A•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C229	(B•A-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C230	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C231	(B•A-5)	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C232	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C233	(A•A-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C234	(A•A-6)	1-164-346-11	CERAMIC CHIP	1uF		16V
C235	(B•B-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C236	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C238	(A•A-12)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C239	(A•A-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C240	(A•A-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C241	(A•A-11)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C242	(A•A-11)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C243	(B•B-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C244	(A•B-11)	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C245	(A•A-11)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C246	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C247	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C248	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C249	(A•A-12)	1-164-346-11	CERAMIC CHIP	1uF		16V
C250	(A•A-12)	1-164-346-11	CERAMIC CHIP	1uF		16V
C251	(A•A-12)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C252	(A•A-10)	1-164-346-11	CERAMIC CHIP	1uF		16V
C253	(B•A-10)	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C254	(A•B-10)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C255	(A•A-10)	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C256	(A•A-10)	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C257	(A•A-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C258	(B•B-9)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C259	(B•B-9)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C260	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C261	(B•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C262	(A•A-10)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C263	(A•A-10)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C264	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C265	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C266	(A•A-10)	1-164-346-11	CERAMIC CHIP	1uF		16V
C267	(A•B-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C268	(A•B-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C269	(A•B-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C270	(A•A-7)	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C271	(A•A-8)	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C272	(A•B-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C273	(A•B-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C274	(A•A-6)	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C275	(A•A-9)	1-164-842-11	CERAMIC CHIP	2PF	0.25PF	16V
C276	(A•A-7)	1-164-931-11	CERAMIC CHIP	100PF	10%	16V
C278	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C279	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C280	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C281	(B•B-9)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C282	(B•A-8)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C283	(B•A-8)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C302	(B•D-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C304	(B•C-12)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C307	(B•C-10)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C308	(B•C-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C309	(A•C-5)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C311	(B•B-11)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C312	(B•B-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C313	(B•C-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C314	(B•B-12)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C315	(A•B-12)	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C316	(B•B-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C317	(B•B-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C318	(B•C-12)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C320	(A•B-11)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C322	(B•B-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description			Remark
C323	(B•B-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C328	(A•C-11)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C329	(A•B-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C330	(A•B-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C401	(B•G-4)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C402	(B•G-4)	1-164-894-11	CERAMIC CHIP	10PF	0.5PF	16V
C403	(B•G-3)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C405	(A•F-3)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C406	(A•G-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C408	(A•G-3)	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C410	(A•F-2)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C411	(A•F-5)	1-135-072-21	TANTALUM CHIP	0.22uF	10%	35V
C412	(A•F-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C413	(B•F-4)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C414	(A•G-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C415	(A•G-3)	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C416	(A•G-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C418	(A•G-3)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C420	(A•F-5)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C422	(B•F-3)	1-164-924-11	CERAMIC CHIP	180PF	5%	16V
C423	(B•F-2)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C424	(B•F-2)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C427	(B•F-2)	1-164-926-11	CERAMIC CHIP	220PF	5%	16V
C428	(B•F-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C429	(B•F-3)	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C431	(A•F-2)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C432	(B•F-2)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C433	(B•E-2)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C435	(B•E-2)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V
C436	(A•E-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C437	(A•F-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C438	(B•F-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C439	(B•E-3)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C440	(A•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C441	(B•F-4)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C442	(B•E-3)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C443	(B•F-4)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C444	(B•E-3)	1-164-916-11	CERAMIC CHIP	82PF	5%	16V
C445	(B•F-4)	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C447	(A•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C448	(B•E-4)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C449	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C451	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C452	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C453	(A•E-4)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C454	(B•F-4)	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C455	(B•F-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C456	(B•E-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C457	(B•E-4)	1-164-896-11	CERAMIC CHIP	12PF	5%	16V
C459	(B•E-2)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V
C460	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C462	(B•D-4)	1-164-924-11	CERAMIC CHIP	180PF	5%	16V
C463	(A•E-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C464	(B•E-3)	1-164-912-11	CERAMIC CHIP	56PF	5%	16V
C465	(B•E-4)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V
C466	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C467	(A•E-5)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C469	(B•E-3)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C472	(A•E-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C474	(B•D-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C475	(A•D-6)	1-164-912-11	CERAMIC CHIP	56PF	5%	16V
C476	(A•E-6)	1-164-914-11	CERAMIC CHIP	68PF	5%	16V
C477	(B•D-6)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C478	(A•E-6)	1-164-926-11	CERAMIC CHIP	220PF	5%	16V
C479	(A•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C480	(A•D-6)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C481	(A•D-6)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V
C482	(A•D-6)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C483	(A•D-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C484	(A•D-6)	1-164-916-11	CERAMIC CHIP	82PF	5%	16V
C486	(B•E-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C487	(B•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C488	(B•D-5)	1-135-247-11	TANTAL. CHIP	47uF	20%	6.3V
C490	(B•E-5)	1-135-247-11	TANTAL. CHIP	47uF	20%	6.3V
C491	(A•D-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C494	(B•E-7)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C495	(A•E-7)	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C496	(B•E-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C497	(B•E-5)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C498	(A•E-6)	1-164-894-11	CERAMIC CHIP	10PF	0.5PF	16V
C499	(A•F-6)	1-164-902-11	CERAMIC CHIP	22PF	5%	16V
C501	(B•F-5)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C502	(B•E-5)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C503	(B•F-5)	1-135-226-21	TANTAL. CHIP	0.68uF	20%	16V
C504	(B•E-6)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C505	(A•E-3)	1-164-914-11	CERAMIC CHIP	68PF	5%	16V
C506	(B•D-4)	1-164-902-11	CERAMIC CHIP	22PF	5%	16V
C507	(B•D-7)	1-164-900-11	CERAMIC CHIP	18PF	5%	16V
C508	(A•E-2)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C551	(B•C-7)	1-164-346-11	CERAMIC CHIP	1uF		16V
C553	(B•C-7)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C554	(B•C-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C555	(B•C-8)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C556	(B•C-8)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C557	(B•C-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C558	(B•D-8)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C559	(B•C-8)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C561	(B•C-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C562	(B•C-7)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C563	(A•C-6)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V

Ref.No.	Address	Part No.	Description			Remark
C564	(A•C-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C565	(B•C-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C567	(B•C-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C568	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C569	(B•C-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C570	(B•C-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C571	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C572	(B•C-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C573	(B•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C574	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C576	(B•C-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C577	(B•D-5)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C578	(B•C-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C579	(B•C-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C580	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C581	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C582	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C583	(B•E-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C584	(B•F-2)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C586	(A•F-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C590	(A•C-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C601	(B•G-8)	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C602	(A•H-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C603	(B•G-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C604	(B•F-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C605	(A•G-8)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C608	(B•F-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C609	(B•G-9)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C610	(B•F-9)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C613	(B•F-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C614	(A•G-10)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C615	(A•H-10)	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C617	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C618	(B•G-9)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C619	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C620	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C621	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C622	(B•G-9)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C623	(B•G-9)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C624	(B•F-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C625	(B•F-9)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C626	(B•E-9)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C627	(B•G-9)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C628	(B•F-10)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C629	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C630	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C631	(B•E-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C651	(A•F-10)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C652	(B•F-12)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C654	(B•G-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V

Ref.No.	Address	Part No.	Description			Remark
C655	(B•G-11)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C656	(B•E-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C657	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C660	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C664	(B•E-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C665	(B•G-10)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C666	(B•G-10)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C667	(A•H-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C668	(A•H-11)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C669	(A•H-11)	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C670	(A•H-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C671	(A•H-12)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C673	(A•F-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C674	(B•E-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C675	(A•F-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C678	(A•E-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C679	(A•F-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C680	(A•G-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C681	(B•E-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C682	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C683	(B•H-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C684	(B•E-11)	1-164-896-11	CERAMIC CHIP	12PF	5%	16V
C685	(B•E-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C686	(A•F-12)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V
C901	(B•H-5)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C902	(A•E-7)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C903	(A•E-7)	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C904	(A•E-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C906	(B•F-7)	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C907	(A•G-5)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C908	(A•G-5)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C909	(A•F-6)	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C910	(B•F-5)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C911	(A•G-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C912	(A•F-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C913	(B•G-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C914	(B•G-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C920	(B•C-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C921	(B•C-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C922	(B•G-7)	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C923	(B•G-7)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C924	(B•G-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C925	(B•G-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C927	(B•G-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C928	(A•B-7)	1-164-862-11	CERAMIC CHIP	33PF	5%	16V

< CONNECTOR >

Ref.No.	Address	Part No.	Description
CN001	(A•A-4)	1-573-355-11	CONNECTOR, FFC/FPC 15P
CN002	(A•D-1)	1-573-371-21	CONNECTOR, BOARD TO BOARD 14P
CN201	(A•A-12)	1-573-924-11	CONNECTOR, FFC/FPC (ZIF) 15P

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref. No.	Address	Part No.	Description	Remark
CN202	(A•A-7)	1-573-915-11	CONNECTOR, FFC/FPC (ZIF) 6P	
CN203	(A•A-6)	1-573-293-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
CN204	(A•D-9)	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	
CN206	(A•A-8)	1-573-921-11	CONNECTOR, FFC/FPC (ZIF) 12P	
CN207	(A•A-10)	1-573-927-11	CONNECTOR, FFC/FPC (ZIF) 18P	
CN303	(A•D-12)	1-691-486-11	CONNECTOR, FFC/FPC 7P	
CN304	(A•B-5)	1-691-518-11	CONNECTOR, BOARD TO BOARD 28P	
CN305	(A•C-12)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	
CN601	(A•G-8)	1-695-409-11	CONNECTOR, BOARD TO BOARD 16P	
CN651	(B•E-12)	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P	
CN652	(A•E-8)	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	
CN911	(A•H-5)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	
CN912	(A•H-7)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	

< TRIMMER >

Ref. No.	Address	Part No.	Description	Remark
CT601	(A•H-8)	1-141-430-51	CAP, CHIP TRIMMER (6PF)	
CT901	(A•C-7)	1-141-368-11	CAP, CHIP TRIMMER (10PF)	

< DIODE >

Ref. No.	Address	Part No.	Description	Remark
D071	(B•H-4)	8-719-404-46	DIODE MA110	
D101	(B•D-3)	8-719-820-41	DIODE 1SS302	
D102	(A•D-3)	8-719-404-46	DIODE MA110	
D301	(B•B-11)	8-719-421-67	DIODE MA132WK	
D303	(A•B-12	8-719-025-86	DIODE RD8.2UMB2B3	
D304	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D305	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D306	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D307	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D308	(B•B-10)	8-719-404-46	DIODE MA110	
D309	(B•D-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D310	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D401	(B•G-5)	8-719-404-46	DIODE MA110	
D402	(B•F-5)	8-719-025-84	DIODE MA1S121	
D403	(B•D-4)	8-719-421-71	DIODE MA132WA	
D404	(A•E-2)	8-719-421-71	DIODE MA132WA	
D405	(A•E-3)	8-719-404-46	DIODE MA110	
D551	(B•B-7)	8-719-421-67	DIODE MA132WK	
D554	(B•G-4)	8-719-421-67	DIODE MA132WK	
⚠D901	(B•G-6)	8-719-421-27	DIODE MA728	
D902	(A•F-7)	8-719-421-67	DIODE MA132WK	
D903	(B•F-6)	8-719-025-86	DIODE RD8.2UMB2B3	

< FILTER >

Ref. No.	Address	Part No.	Description	Remark
FL071	(A•H-3)	1-239-386-21	FILTER, BAND PASS (PAL.JOG)	
FL401	(A•G-2)	1-236-775-11	FILTER, LOW PASS (DEM)	
FL402	(A•E-2)	1-239-112-21	FILTER, LOW PASS (Y)	
FL403	(A•D-8)	1-239-110-11	FILTER, BAND PASS	
FL404	(B•D-6)	1-579-668-11	FILTER, CERAMIC	
FL405	(A•D-8)	1-239-349-21	FILTER, BAND PASS (CE.PAL)	
FL551	(A•C-7)	1-236-848-21	FILTER, LOW PASS	
FL552	(A•C-6)	1-239-010-11	FILTER, LOW PASS (CCD.PAL.Y)	
FL651	(A•F-12)	1-239-352-11	FILTER, LOW PASS	

< IC >

Ref. No.	Address	Part No.	Description	Remark
IC001	(A•C-3)	8-759-080-22	IC CXA1555BR-E2	
IC071	(B•H-3)	8-752-060-94	IC CXA1203N	
IC101	(A•D-2)	8-752-058-02	IC CXA1509AR	
IC201	(B•A-8)	8-752-840-44	IC CXP80620A-012R	
IC202	(B•A-6)	8-759-059-42	IC CXA1481AR	
IC203	(B•A-11)	8-759-823-90	IC LB8110M	
IC204	(B•A-12)	8-759-057-74	IC MCD002AR	
IC205	(B•A-10)	8-759-057-77	IC MCD004BN	
IC206	(A•A-8)	8-759-062-02	IC MPC1720VM	
IC302	(B•B-11)	8-759-038-83	IC MC13400FU	
IC303	(A•B-6)	8-759-069-23	IC MB88344PFV	
IC306	(A•B-11)	8-759-061-70	IC MB86168PFV	
IC401	(A•F-4)	8-752-065-54	IC CXA1207AR	
IC402	(A•E-5)	8-752-053-21	IC CXA1211M	
IC403	(A•D-5)	8-759-636-33	IC CXA1452N	
IC404	(B•E-7)	8-752-065-56	IC CXA1208R	
IC405	(A•D-6)	8-752-053-21	IC CXA1211M	
IC406	(A•D-4)	8-759-070-51	IC SN74HCU04ADB	
IC551	(B•C-7)	8-752-351-95	IC CXL1506N	
IC552	(B•C-6)	8-752-351-95	IC CXL1506N	
IC601	(B•G-8)	8-752-354-07	IC CXD1250AN-T4	
IC602	(A•G-9)	8-752-341-09	IC CXD1265R-T6	
IC603	(B•F-9)	8-752-053-26	IC CXA1399Q	
IC604	(B•E-9)	8-752-056-39	IC CXA1507BR	
IC651	(B•G-11)	8-759-044-78	IC AK6420F	
IC653	(B•F-11)	8-759-097-72	IC SC406805FUMC68HC11M2	
IC654	(A•F-9)	8-759-064-36	IC MB88346BPFV	
IC656	(A•E-9)	8-759-074-92	IC CXD2133R	
IC659	(A•E-11)	8-752-350-13	IC CXD2130R	
IC660	(A•G-11)	8-752-348-92	IC CXD2101AR	
IC661	(B•G-10)	8-759-031-58	IC SC7SU04F	
IC901	(B•G-6)	8-759-044-78	IC AK6420F	
⚠IC902	(B•G-6)	8-759-099-91	IC S-8420JF-T2	
IC903	(A•G-6)	8-759-157-98	IC MB89092PFV-G-112A	
IC904	(B•G-7)	8-759-059-05	IC TL1596CPW	
IC905	(A•C-8)	8-759-073-98	IC uPD6453GT-621	

< COIL >

Ref. No.	Address	Part No.	Description	Remark
L001	(A•B-5)	1-412-033-11	INDUCTOR CHIP 220uH	
L002	(A•A-5)	1-412-951-11	INDUCTOR 10uH	
L004	(B•C-4)	1-414-119-11	INDUCTOR 22uH	
L005	(B•A-4)	1-412-032-11	INDUCTOR CHIP 100uH	
L007	(B•A-3)	1-412-032-11	INDUCTOR CHIP 100uH	
L008	(B•B-3)	1-414-119-11	INDUCTOR 22uH	
L071	(A•G-2)	1-412-951-11	INDUCTOR 10uH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Address	Part No.	Description	Remark
L103	(A•E-1)	1-412-961-11	INDUCTOR 68uH	
L104	(B•F-1)	1-412-947-11	INDUCTOR 4.7uH	
L105	(B•D-2)	1-412-954-11	INDUCTOR 18uH	
L106	(B•E-2)	1-412-945-11	INDUCTOR 3.3uH	
L109	(B•D-2)	1-410-657-21	INDUCTOR CHIP 180uH	
L110	(B•D-1)	1-412-954-11	INDUCTOR 18uH	
L111	(A•D-3)	1-412-029-11	INDUCTOR CHIP 10uH	
L112	(A•C-3)	1-412-954-11	INDUCTOR 18uH	
L113	(B•D-3)	1-412-957-11	INDUCTOR 33uH	
L114	(B•D-4)	1-412-951-11	INDUCTOR 10uH	
L120	(B•C-2)	1-412-957-11	INDUCTOR 33uH	
L121	(A•C-2)	1-412-279-31	INDUCTOR 270uH	
L122	(A•C-2)	1-412-282-41	INDUCTOR 470uH	
L123	(A•C-1)	1-410-657-21	INDUCTOR CHIP 180uH	
L124	(B•D-2)	1-412-958-21	INDUCTOR 39uH	
L125	(B•C-3)	1-412-949-21	INDUCTOR 6.8uH	
L126	(A•D-4)	1-410-655-31	INDUCTOR CHIP 120uH	
L172	(B•D-3)	1-412-952-11	INDUCTOR 12uH	
L173	(B•C-1)	1-412-029-11	INDUCTOR CHIP 10uH	
L175	(A•D-4)	1-412-947-11	INDUCTOR 4.7uH	
L201	(A•A-5)	1-412-062-11	INDUCTOR CHIP 47uH	
L203	(A•A-5)	1-412-064-11	INDUCTOR CHIP 100uH	
L303	(B•B-6)	1-412-959-11	INDUCTOR 47uH	
L305	(B•D-12)	1-414-117-11	INDUCTOR 1uH	
L306	(B•C-12)	1-414-117-11	INDUCTOR 1uH	
L401	(B•G-4)	1-412-963-11	INDUCTOR 100uH	
L402	(B•C-8)	1-412-951-11	INDUCTOR 10uH	
L404	(A•G-4)	1-412-951-11	INDUCTOR 10uH	
L405	(B•F-3)	1-412-956-21	INDUCTOR 27uH	
L406	(B•F-3)	1-412-946-11	INDUCTOR 3.9uH	
L407	(B•E-3)	1-412-956-21	INDUCTOR 27uH	
L408	(B•E-4)	1-412-953-11	INDUCTOR 15uH	
L411	(B•E-4)	1-412-947-11	INDUCTOR 4.7uH	
L413	(A•E-6)	1-410-393-11	INDUCTOR CHIP 100uH	
L414	(A•E-2)	1-412-960-21	INDUCTOR 56uH	
L415	(A•E-6)	1-410-655-31	INDUCTOR CHIP 120uH	
L416	(A•D-6)	1-412-963-11	INDUCTOR 100uH	
L417	(A•D-6)	1-410-656-11	INDUCTOR CHIP 150uH	
L418	(B•E-7)	1-412-963-11	INDUCTOR 100uH	
L420	(A•E-6)	1-412-956-21	INDUCTOR 27uH	
L421	(A•E-3)	1-412-952-11	INDUCTOR 12uH	
L422	(B•E-4)	1-412-960-21	INDUCTOR 56uH	
L601	(B•F-8)	1-412-991-11	INDUCTOR 10uH	
L602	(B•G-9)	1-412-029-11	INDUCTOR CHIP 10uH	
L603	(B•F-8)	1-412-029-11	INDUCTOR CHIP 10uH	
L604	(B•E-9)	1-412-029-11	INDUCTOR CHIP 10uH	
L651	(B•F-12)	1-412-991-11	INDUCTOR 10uH	
L653	(B•G-11)	1-414-078-11	INDUCTOR 10uH	
L655	(B•E-11)	1-414-078-11	INDUCTOR 10uH	
L656	(B•E-11)	1-414-078-11	INDUCTOR 10uH	

Ref. No.	Address	Part No.	Description	Remark
L659	(B•G-11)	1-412-006-31	INDUCTOR CHIP 10uH	
L661	(B•E-12)	1-412-963-11	INDUCTOR 100uH	
L663	(A•C-10)	1-414-117-11	INDUCTOR 1uH	
L664	(B•C-9)	1-412-979-21	INDUCTOR 1uH	
L665	(B•D-9)	1-412-979-21	INDUCTOR 1uH	
L666	(A•D-10)	1-414-117-11	INDUCTOR 1uH	
L667	(A•C-10)	1-414-117-11	INDUCTOR 1uH	
L901	(A•F-7)	1-414-120-11	INDUCTOR 47uH	
L902	(A•B-7)	1-412-959-11	INDUCTOR 47uH	
L903	(B•C-7)	1-414-120-11	INDUCTOR 47uH	
L904	(A•G-4)	1-412-979-21	INDUCTOR 1uH	

< IC LINK >

Ref. No.	Address	Part No.	Description	Remark
⚠PS201	(A•B-7)	1-576-123-21	LINK, IC	
⚠PS901	(B•F-7)	1-576-123-21	LINK, IC	

< TRANSISTOR >

Ref. No.	Address	Part No.	Description	Remark
Q001	(A•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q002	(B•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q003	(B•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q005	(B•A-4)	8-729-015-66	TRANSISTOR 2SC4919	
Q006	(B•A-4)	8-729-015-66	TRANSISTOR 2SC4919	
Q007	(B•A-3)	8-729-015-66	TRANSISTOR 2SC4919	
Q008	(B•A-3)	8-729-015-66	TRANSISTOR 2SC4919	
Q010	(B•B-4)	8-729-428-88	TRANSISTOR UN9113	
Q011	(B•B-4)	8-729-428-88	TRANSISTOR UN9113	
Q012	(B•B-3)	8-729-428-88	TRANSISTOR UN9113	
Q013	(B•B-3)	8-729-428-88	TRANSISTOR UN9113	
Q071	(B•G-4)	8-729-428-88	TRANSISTOR UN9113	
Q072	(B•H-2)	8-729-429-18	TRANSISTOR UN9213	
Q073	(A•H-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q074	(A•G-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q075	(A•G-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q076	(A•G-4)	8-729-429-18	TRANSISTOR UN9213	
Q101	(B•E-1)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q102	(B•E-1)	8-729-429-18	TRANSISTOR UN9213	
Q104	(B•D-3)	8-729-429-18	TRANSISTOR UN9213	
Q105	(B•D-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q106	(B•D-3)	8-729-428-88	TRANSISTOR UN9113	
Q107	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q108	(B•D-4)	8-729-427-46	TRANSISTOR XP4213	
Q109	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q110	(A•C-2)	8-729-429-18	TRANSISTOR UN9213	
Q111	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	
Q115	(B•C-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q116	(B•D-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q117	(B•D-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q118	(B•C-2)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q119	(B•C-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q120	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VC-129

VC-129 address display
A • C-5
XY axes
Side A or Side B

Ref.No.	Address	Part No.	Description	Remark
Q121	(B•D-4)	8-729-429-18	TRANSISTOR UN9213	
Q122	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q123	(A•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q124	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	
Q201	(A•B-12)	8-729-429-14	TRANSISTOR UN9211	
Q202	(A•A-7)	8-729-017-61	TRANSISTOR 2SB15811	
Q203	(B•C-9)	8-729-427-16	TRANSISTOR XP4113	
Q204	(B•D-9)	8-729-427-46	TRANSISTOR XP4213	
Q205	(B•C-9)	8-729-429-32	TRANSISTOR UN9210-QRS	
Q303	(B•C-12)	8-729-429-18	TRANSISTOR UN9213	
Q304	(B•C-12)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q305	(B•C-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q306	(B•C-11)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q307	(B•B-10)	8-729-429-18	TRANSISTOR UN9213	
Q401	(B•F-4)	8-729-429-18	TRANSISTOR UN9213	
Q402	(B•G-4)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q403	(B•G-3)	8-729-824-05	TRANSISTOR 3SK248	
Q404	(B•F-4)	8-729-429-18	TRANSISTOR UN9213	
Q405	(B•G-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q406	(A•F-2)	8-729-429-18	TRANSISTOR UN9213	
Q408	(B•G-5)	8-729-427-46	TRANSISTOR XP4213	
Q409	(B•G-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q410	(B•G-5)	8-729-429-50	TRANSISTOR XP4312	
Q411	(B•F-2)	8-729-427-72	TRANSISTOR XP4501	
Q412	(B•F-4)	8-729-428-88	TRANSISTOR UN9113	
Q413	(B•F-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q414	(B•F-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q415	(B•E-2)	8-729-428-88	TRANSISTOR UN9113	
Q417	(B•F-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q418	(B•E-2)	8-729-428-84	TRANSISTOR UN9111	
Q419	(B•E-3)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q420	(A•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q421	(B•E-3)	8-729-425-85	TRANSISTOR XP1113	
Q425	(B•D-5)	8-729-428-88	TRANSISTOR UN9113	
Q426	(B•F-5)	8-729-429-06	TRANSISTOR UN911E	
Q427	(B•E-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q428	(B•E-4)	8-729-015-70	TRANSISTOR 2SA1865	
Q429	(A•F-1)	8-729-429-18	TRANSISTOR UN9213	
Q431	(A•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q435	(A•E-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q437	(B•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q438	(A•C-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q439	(A•D-6)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q440	(A•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q441	(B•D-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q442	(A•E-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q443	(B•E-6)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q444	(B•E-7)	8-729-429-18	TRANSISTOR UN9213	
Q445	(B•E-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q446	(A•E-7)	8-729-425-73	TRANSISTOR 2SC4627-C	

Ref.No.	Address	Part No.	Description	Remark
Q447	(A•E-6)	8-729-428-88	TRANSISTOR UN9113	
Q448	(A•E-2)	8-729-429-18	TRANSISTOR UN9213	
Q449	(A•E-3)	8-729-429-18	TRANSISTOR UN9213	
Q450	(A•E-2)	8-729-429-18	TRANSISTOR UN9213	
Q451	(B•D-4)	8-729-429-18	TRANSISTOR UN9213	
Q552	(B•F-5)	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q553	(B•C-7)	8-729-429-18	TRANSISTOR UN9213	
Q554	(B•C-8)	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q555	(B•C-7)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q556	(A•C-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q557	(A•C-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q558	(B•C-5)	8-729-429-18	TRANSISTOR UN9213	
Q559	(B•C-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q560	(B•C-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q561	(A•D-7)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q562	(B•F-4)	8-729-015-68	TRANSISTOR 2SC4922	
Q563	(B•F-4)	8-729-015-68	TRANSISTOR 2SC4922	
Q566	(A•C-6)	8-729-429-18	TRANSISTOR UN9213	
Q601	(A•G-8)	8-729-427-70	TRANSISTOR XP4401	
Q603	(B•G-9)	8-729-427-74	TRANSISTOR XP4601	
Q656	(B•E-11)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q657	(A•F-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q658	(A•E-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q659	(B•E-12)	8-729-425-64	TRANSISTOR 2SD2216-Q	

< RESISTOR >

Ref.No.	Address	Part No.	Description	Remark
R001	(A•B-5)	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R002	(A•B-5)	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R003	(B•B-5)	1-218-946-11	METAL GLAZE 270 5% 1/16W	
R004	(B•B-5)	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R005	(B•B-5)	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R006	(B•C-5)	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R007	(B•B-5)	1-218-937-11	METAL GLAZE 47 5% 1/16W	
R008	(B•B-5)	1-218-937-11	METAL GLAZE 47 5% 1/16W	
R009	(B•A-5)	1-218-950-11	METAL GLAZE 560 5% 1/16W	
R011	(A•B-4)	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R012	(B•B-4)	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R013	(A•B-4)	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R015	(B•A-4)	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R018	(B•A-4)	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R019	(A•A-4)	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R020	(A•A-3)	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R021	(B•A-3)	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R024	(B•A-3)	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R025	(A•B-3)	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R026	(B•B-3)	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R027	(A•B-3)	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R028	(B•B-4)	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R029	(A•C-3)	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R030	(A•C-3)	1-218-969-11	METAL GLAZE 22K 5% 1/16W	

Ref.No.	Address	Part No.	Description			Remark
R033	(A•B-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R034	(A•B-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R035	(A•B-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R036	(A•B-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R037	(B•B-4)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R039	(A•C-3)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R040	(A•C-3)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R043	(B•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R044	(B•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R045	(B•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R046	(B•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R047	(B•B-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R051	(A•C-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R052	(A•C-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R055	(A•C-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R071	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R072	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R073	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R074	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R075	(B•H-4)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R076	(B•H-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R077	(A•H-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R078	(B•G-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R079	(B•H-2)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R080	(B•H-2)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R081	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R082	(B•H-2)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R083	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R084	(A•H-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R085	(A•H-3)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R086	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R087	(A•H-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R088	(A•G-3)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R089	(A•G-4)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R090	(A•G-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R101	(B•E-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R102	(A•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R104	(B•D-1)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R105	(A•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R106	(B•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R108	(B•E-1)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R109	(B•E-1)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R110	(A•D-1)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R111	(B•E-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R112	(B•D-2)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R113	(B•C-4)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R115	(B•D-1)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R116	(B•D-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R117	(A•D-2)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R118	(B•D-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R120	(B•D-2)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R121	(A•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R122	(B•C-4)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R123	(A•C-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R124	(B•C-4)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R126	(A•C-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R128	(B•D-2)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R129	(B•D-2)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R130	(B•D-3)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R131	(B•D-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R132	(B•D-3)	1-218-940-11	METAL GLAZE	82	5%	1/16W
R133	(B•D-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R134	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R135	(B•D-3)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R136	(B•D-3)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R137	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R138	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R139	(B•D-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R140	(B•D-4)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R141	(B•D-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R143	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R144	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R145	(A•D-3)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R155	(B•D-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R156	(B•C-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R157	(B•C-2)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R158	(B•C-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R159	(B•C-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R160	(B•C-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R161	(B•C-2)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R162	(B•D-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R163	(B•C-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R164	(B•C-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R165	(B•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R166	(B•D-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R167	(B•C-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R168	(B•D-3)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R169	(B•C-3)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R170	(B•C-4)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R171	(B•D-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R172	(B•C-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R173	(B•C-4)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R174	(A•D-3)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R175	(A•D-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R201	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R202	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R203	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R204	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R205	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R206	(B•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description			Remark
R207	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R208	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R209	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R210	(A•B-8)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R211	(A•B-8)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R213	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R214	(B•B-9)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R215	(B•A-7)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R216	(B•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R217	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R218	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R219	(B•A-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R224	(B•A-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R225	(A•B-6)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R226	(B•B-6)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R227	(B•B-6)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R228	(B•B-6)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R229	(B•B-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R230	(B•B-6)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R231	(B•B-6)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R232	(B•A-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R233	(B•A-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R234	(B•A-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R235	(B•A-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R236	(B•A-5)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R237	(B•A-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R238	(B•A-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R239	(A•A-12)	1-216-019-00	METAL CHIP	56	5%	1/10W
R240	(B•A-6)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R241	(A•A-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R242	(A•A-11)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R243	(A•A-11)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R244	(A•A-11)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R245	(A•A-11)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R246	(A•A-11)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R247	(A•A-11)	1-218-984-11	METAL GLAZE	390K	5%	1/16W
R248	(A•A-11)	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R249	(A•A-11)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R250	(A•A-11)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R251	(A•A-12)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R253	(B•A-11)	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R254	(A•A-12)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R255	(A•A-12)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R256	(A•A-12)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R257	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R258	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R259	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R260	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R261	(A•B-10)	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R262	(B•A-10)	1-218-941-11	METAL GLAZE	100	5%	1/16W
R263	(B•A-10)	1-218-883-11	METAL CHIP	33K	0.50%	1/16W
R264	(A•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R265	(A•A-10)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R266	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R267	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R268	(A•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R269	(A•A-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R270	(A•A-9)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R271	(A•A-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R272	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R273	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R274	(B•A-9)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R276	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R277	(A•B-8)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R278	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R279	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R280	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R283	(B•A-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R284	(B•A-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R285	(A•A-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R286	(A•B-11)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R287	(B•A-7)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R289	(B•A-9)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R290	(A•A-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R299	(A•A-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R302	(B•C-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R303	(B•C-12)	1-218-975-11	METAL GLAZE	68K	5%	1/16W
R304	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R305	(B•C-12)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R306	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R307	(B•C-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R308	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R309	(B•C-12)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R310	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R311	(A•C-12)	1-216-864-11	METAL CHIP	0	5%	1/16W
R312	(B•B-10)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R313	(A•C-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R314	(B•C-10)	1-216-296-00	METAL CHIP	0	5%	1/8W
R315	(A•B-12)	1-216-296-00	METAL CHIP	0	5%	1/8W
R318	(B•B-11)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R319	(B•B-11)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R323	(B•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R324	(B•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R325	(B•B-12)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R326	(B•B-12)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R327	(B•B-12)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R328	(B•B-12)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R329	(B•B-12)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R330	(B•B-10)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R331	(B•C-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R341	(A•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R401	(B•G-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R402	(B•G-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R403	(A•E-2)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R404	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R406	(B•G-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R410	(B•G-4)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R411	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R412	(B•F-4)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R413	(B•G-3)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R414	(B•G-4)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R415	(A•F-3)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R416	(A•F-3)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R417	(B•G-3)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R418	(B•G-3)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R419	(A•F-3)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R420	(B•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R422	(B•G-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R423	(A•G-4)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R424	(A•F-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R425	(A•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R426	(B•G-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R427	(A•G-3)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R428	(A•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R429	(B•G-3)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R430	(B•G-2)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R431	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R432	(B•G-2)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R433	(B•G-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R434	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R435	(B•G-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R436	(A•F-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R438	(B•F-3)	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R439	(B•F-4)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R440	(B•F-4)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R441	(B•F-4)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R442	(B•F-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R443	(B•F-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R444	(B•F-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R445	(B•F-3)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R446	(B•F-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R447	(B•F-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R448	(B•F-3)	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R449	(B•E-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R451	(B•F-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R452	(B•E-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R453	(B•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R454	(B•F-4)	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R455	(A•F-3)	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W
R456	(B•E-2)	1-218-946-11	METAL GLAZE	270	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R457	(B•F-3)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R458	(B•F-4)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R459	(B•F-4)	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R461	(A•F-4)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R462	(B•E-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R463	(B•F-3)	1-216-816-11	METAL CHIP	390	5%	1/16W
R465	(B•E-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R466	(B•E-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R467	(B•E-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R468	(B•E-6)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R469	(B•F-4)	1-216-817-11	METAL CHIP	470	5%	1/16W
R470	(B•C-8)	1-216-296-00	METAL CHIP	0	5%	1/8W
R471	(B•E-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R472	(A•E-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R473	(A•F-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R475	(A•D-7)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R476	(B•D-8)	1-216-296-00	METAL CHIP	0	5%	1/8W
R477	(B•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R478	(B•E-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R479	(B•E-3)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R480	(B•E-3)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R482	(B•E-3)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R483	(A•F-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R484	(B•G-4)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R485	(A•E-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R486	(B•D-7)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R487	(B•E-2)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R488	(B•E-4)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R489	(B•D-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R490	(A•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R491	(A•E-4)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R492	(B•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R495	(A•E-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R497	(B•C-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R498	(B•D-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R499	(A•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R501	(A•E-3)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R502	(B•E-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R503	(A•D-6)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R504	(A•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R505	(B•D-5)	1-218-939-11	METAL GLAZE	68	5%	1/16W
R509	(A•D-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R510	(B•D-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R513	(B•D-7)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R514	(A•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R516	(B•D-6)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R517	(A•D-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R518	(A•E-6)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R521	(A•D-6)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R522	(A•D-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W

VC-129

VC-129 address display
A • C-5
XY axes
Side A or Side B

Ref. No.	Address	Part No.	Description			Remark
R523	(A•E-6)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R524	(B•D-7)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R526	(B•E-7)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R527	(B•D-7)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R528	(B•D-6)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R529	(B•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R531	(B•D-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R533	(B•D-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R534	(A•E-7)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R535	(A•E-7)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R536	(A•E-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R537	(A•E-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R538	(A•E-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R539	(A•E-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R540	(A•E-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R541	(B•F-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R542	(B•E-6)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R543	(A•D-5)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R545	(A•D-4)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R552	(B•F-5)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R553	(B•C-8)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R554	(B•C-7)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R555	(B•C-7)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R556	(B•D-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R557	(B•C-8)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R558	(B•C-8)	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R559	(B•B-8)	1-216-864-11	METAL CHIP	0	5%	1/16W
R561	(A•D-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R565	(B•D-7)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R566	(B•D-7)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R567	(B•D-7)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R568	(B•D-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R569	(B•D-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R570	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R571	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R572	(A•C-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R573	(A•C-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R574	(A•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R575	(B•C-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R576	(B•C-6)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R577	(B•C-6)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R578	(B•C-6)	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R579	(B•D-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R581	(B•C-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R582	(B•D-5)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R583	(B•D-5)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R584	(B•D-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R585	(B•D-5)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R586	(B•D-5)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R587	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W

Ref. No.	Address	Part No.	Description			Remark
R588	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R589	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R590	(A•E-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R591	(A•D-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R592	(B•E-2)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R593	(B•E-2)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R594	(B•F-2)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R595	(B•F-2)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R596	(B•E-2)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R598	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R599	(A•C-7)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R601	(A•H-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R603	(A•G-8)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R604	(A•G-8)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R608	(B•F-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R609	(B•F-8)	1-218-721-11	METAL CHIP	16K	0.50%	1/16W
R610	(B•F-8)	1-216-821-11	METAL CHIP	1K	5%	1/16W
R611	(B•G-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R612	(B•G-9)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R613	(B•E-10)	1-218-933-11	METAL GLAZE	22	5%	1/16W
R614	(B•G-9)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R616	(A•G-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R617	(B•F-9)	1-218-937-11	METAL GLAZE	47	5%	1/16W
R618	(B•F-10)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R619	(B•G-9)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R620	(B•G-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R652	(B•G-12)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R653	(B•F-12)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R654	(A•F-10)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R655	(A•H-11)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R656	(A•H-12)	1-218-937-11	METAL GLAZE	47	5%	1/16W
R657	(B•F-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R659	(B•G-11)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R670	(A•D-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R671	(A•F-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R672	(A•F-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R674	(A•H-10)	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W
R675	(A•H-10)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R679	(A•H-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R680	(A•H-11)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R682	(A•H-11)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R684	(A•H-11)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R685	(A•H-11)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R686	(A•H-11)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R687	(A•H-12)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R689	(A•H-12)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R690	(A•H-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R691	(A•F-12)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R692	(B•E-11)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R693	(A•F-12)	1-218-966-11	METAL GLAZE	12K	5%	1/16W

Ref. No.	Address	Part No.	Description			Remark
R694	(B•E-11)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R695	(B•E-12)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R696	(B•E-12)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R697	(A•F-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R698	(A•E-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R699	(B•E-12)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R700	(B•E-12)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R701	(A•E-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R702	(B•E-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R703	(B•H-10)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R705	(A•D-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R901	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R902	(B•H-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R903	(A•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R904	(A•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R905	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R906	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R907	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R908	(B•H-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R909	(A•G-4)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R910	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R911	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R912	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R913	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R914	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R915	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R916	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R917	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R918	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R919	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R920	(B•G-5)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R921	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R922	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R923	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R924	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R926	(A•F-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R927	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R928	(A•G-5)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R930	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R932	(A•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R934	(A•F-5)	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R935	(A•F-7)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R936	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R937	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R938	(B•G-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R939	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R940	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R941	(A•B-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R943	(A•B-9)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R944	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W

Ref. No.		Part No.	Description			Remark
R945	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R946	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R947	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R948	(B•G-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R949	(B•G-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R950	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R951	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R952	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R953	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R954	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R955	(B•G-7)	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R958	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R959	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R960	(B•H-7)	1-218-941-11	METAL GLAZE	100	5%	1/16W
R961	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R962	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R963	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R964	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R965	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R966	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R967	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R968	(A•F-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R969	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R970	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R971	(A•G-4)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R972	(A•F-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R973	(A•F-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R974	(A•F-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R975	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R976	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R977	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R978	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R979	(A•G-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W

< VARIABLE RESISTOR >

Ref. No.		Part No.	Description
RV551	(A•C-7)	1-241-474-11	RES, ADJ, CERMET 470

< CRYSTAL >

Ref. No.		Part No.	Description
X201	(A•A-9)	1-579-671-11	VIBRATOR, CRYSTAL (11.7MHz)
X401	(A•D-7)	1-579-366-11	VIBRATOR, CRYSTAL
X601	(A•H-10)	1-579-622-11	VIBRATOR, CRYSTAL (28.375MHz)
X651	(A•G-12)	1-579-669-21	VIBRATOR, LITIUM NIOBATE (16MHz)
X901	(A•G-5)	1-579-550-11	VIBRATOR, CRYSTAL (32kHz)

< VIBRATOR >

Ref. No.		Part No.	Description
XTL901	(A•E-7)	1-579-369-21	VIBRATOR (10MHz)

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VF-55 **VF-56**

Ref. No.	Part No.	Description	Remark
	A-7063-404-A	VF-55 BOARD, COMPLETE ********************** (Ref. No 6,000 Series)	
		< CAPACITOR >	
C901	1-137-306-11	FILM CHIP 0.1uF 5% 16V	
C902	1-164-634-11	CERAMIC CHIP 1uF 16V	
C903	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C904	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C905	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C906	1-126-176-11	ELECT 220uF 20% 10V	
		< CONNECTOR >	
CN901	1-573-916-11	CONNECTOR, FFC/FPC (ZIF) 7P	
CN902	1-580-085-31	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D901	8-719-404-19	DIODE LN1251C	
		< IC >	
IC901	8-759-420-01	IC AN2512S	
		< RESISTOR >	
R901	1-216-813-11	METAL CHIP 220 5% 1/16W	
R902	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R903	1-216-809-11	METAL CHIP 100 5% 1/16W	
R904	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R905	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R906	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R907	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R908	1-216-013-00	METAL CHIP 33 5% 1/10W	
R909	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R910	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R911	1-216-845-11	METAL CHIP 100K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV901	1-238-858-11	RES, ADJ, CERMET 47K (AFC)	
RV902	1-238-852-11	RES, ADJ, CERMET 470 (V SIZE)	
RV903	1-228-762-00	RES, ADJ, METAL GLAZE 1M (BRIGHT)	
		< THERMISTOR >	
TH901	1-809-350-21	THERMISTOR, NTC (2125) (500Ω)	

****

Ref. No.	Part No.	Description	Remark
	A-7063-405-A	VF-56 BOARD, COMPLETE ********************* (Ref. No 7,000 Series)	
		< CAPACITOR >	
C951	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
⚠C952	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
⚠C953	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
⚠C954	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
C955	1-127-515-11	ELECT(SOLID) 47uF 20% 6.3V	
C956	1-162-948-11	CERAMIC CHIP 39PF 5% 50V	
C957	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
C958	1-126-610-11	ELECT CHIP 2.2uF 0 35V	
C959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C960	1-104-484-11	ELECT 82uF 20% 10V	
		< CONNECTOR >	
CN951	1-580-087-21	CONNECTOR, BOARD TO BOARD 10P	
CN952	1-695-523-11	PIN, CONNECTOR (1.5MM)(SMD) 4P	
		< DIODE >	
D951	8-719-027-48	DIODE MA142WA	
		< COIL >	
L951	1-412-031-11	INDUCTOR CHIP 47uH	
L952	1-412-959-11	INDUCTOR 47uH	
⚠L953	1-402-680-11	COIL, FERRITE (HCL)	
		< TRANSISTOR >	
Q951	8-729-402-32	TRANSISTOR 2SD1819A-R	
Q952	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q953	8-729-106-68	TRANSISTOR 2SD1615A-GP	
		< RESISTOR >	
R951	1-216-817-11	METAL CHIP 470 5% 1/16W	
R953	1-216-817-11	METAL CHIP 470 5% 1/16W	
R955	1-216-820-11	METAL CHIP 820 5% 1/16W	
R956	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R957	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R958	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R959	1-216-795-11	METAL GLAZE 6.8 5% 1/16W	
R960	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R961	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R962	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R963	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R964	1-216-857-11	METAL CHIP 1M 5% 1/16W	
		< VARIABLE RESISTOR >	
RV951	1-238-854-11	RES, ADJ, CERMET 2.2K (CONTRAST)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
		< TRANSFORMER >	
⚠T951	1-453-124-11	TRANSFORMER ASSY, FLYBACK	
		< SOCKET ASSY >	
⚠W951	1-540-019-21	SOCKET ASSY, CRT	

****

MISCELLANEOUS
****

Ref.No.	Part No.	Description	Remark
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
29	1-542-190-11	MICROPHONE UNIT	
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)	
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL	
67	1-537-436-11	TERMINAL BOARD, BATTERY	
74	1-645-053-12	FP-603 FLEXIBLE BOARD	
118	1-644-941-11	FP-540 FLEXIBLE BOARD	
120	1-644-943-11	FP-550 FLEXIBLE BOARD	
121	1-644-947-11	FP-537 FLEXIBLE BOARD	
123	8-848-700-01	DEVICE, LENS LSV-100A	
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
328	1-645-056-11	FP-573 FLEXIBLE BOARD	
401	8-848-700-01	DEVICE, LENS LSV-100A	
IC721	A-7030-371-A	CCD BLOCK ASSY (AUTO) (ICX059AK-2) (CCD IMAGER)	
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80A-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	
M904	1-547-574-11	IRIS (IRX-002)	
M906	8-835-491-01	MOTOR, STEPPING (SPB-01S01N) (ZOOM)	
S991	1-572-611-11	SWITCH, LEAF (C LOCK)	
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi8 MP)	
⚠V901	1-452-673-11	CRT ASSY (M01KXX90WB)	
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	

****

ACCESSORIES & PACKING MATERIALS
****

Ref.No.	Part No.	Description	Remark
	1-575-334-11	CORD, CONNECTION (S VIDEO)	
	1-575-335-21	CORD, CONNECTION (AUDIO/VIDEO)	
	1-693-192-21	REMOTE COMMANDER (RMT-703)	
⚠	1-695-531-11	ADAPTOR, CONVERSION 4P (UK)	
	1-696-713-11	CORD, CONNECTION (FOR AC-V500)	
	3-755-419-41	MANUAL, INSTRUCTION (ENGLISH)	
	3-755-419-51	MANUAL, INSTRUCTION (FRENCH, GERMAN)	(AEP)
	3-755-419-61	MANUAL, INSTRUCTION (SPANISH, ITALIAN)	(AEP)
	3-755-419-71	MANUAL, INSTRUCTION (DUTCH, SWEDISH)	(AEP)
	3-755-419-81	MANUAL, INSTRUCTION (PORTUGUESE)	(AEP)
	3-755-419-91	MANUAL, INSTRUCTION (DANISH, FINNISH)	(AEP)
	3-756-028-41	MANUAL, INSTRUCTION (FOR HSA-V500) (ENGLISH, FRENCH, SPANISH, GERMAN)	(AEP)
	3-756-028-51	MANUAL, INSTRUCTION (FOR HSA-V500) (DUTCH, SWEDISH, ITALIAN, CHINESE)	(AEP)
	3-756-357-11	INSTRUCTION	
	3-783-517-01	BELT (S), SHOULDER	
*	3-949-134-01	CUSHION (LOWER)	
	3-950-096-01	HOLDER, REMOTE CONTROL	
*	3-950-398-01	INDIVIDUAL CARTON	
*	3-950-399-01	CUSHION, ACC	
**	AC-V500	AC POWER ADAPTOR	
**	HSA-V500	HANDYCAM STATION	
***	NP-500	BATTERY PACK	

Note.
** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST
****

Ref.No.	Part No.	Description	Remark
#1	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
#2	7-627-553-28	SCREW, PRECISION +P 2X2.5	
#3	7-624-102-04	STOP RING 1.5, TYPE -E	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 256.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Regulated power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Measuring pin tool for camera section	J-6082-139-A	For adjusting the camera section
J-8	Measuring pin tool for video section	J-6082-140-A	For adjusting the video section
J-9	Extension cable (30P, 0.8 mm)	J-6082-189-A	For extension between the LD-63 board (CN752) and VC-129 board (CN652)
J-10	Extension cable (28P, 0.8 mm)	J-6082-190-A	For extension between the AU-146 board (CN801) and VC-129 board (CN304)
J-11	Extension cable (16P, 0.8 mm)	J-6082-191-A	For extension between the CD-101 board (W721) and VC-129 board (CN601)
J-12	Extension cable (17P, 0.5 mm)	J-6082-194-A	For extension between the EZ-3 board (CN112) and JK board
J-13	Conversion connector (7P, 0.8 mm ↔ 7P, 0.5 mm)	J-6082-199-A	VF-55 board (CN901) FP-603 conversion
J-14	Extension cable (6P, 1.5 mm)	J-6082-152-A	For extension between the DD-54 board (CN351) and FU-129 board (W012) For extension between the EZ-3 board (CN111) and FU-129 board (W011)
J-15	Mode selector A conversion connector	J-6082-167-A	For adjusting the mechanism section

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new micro processor (8-759-148-35).

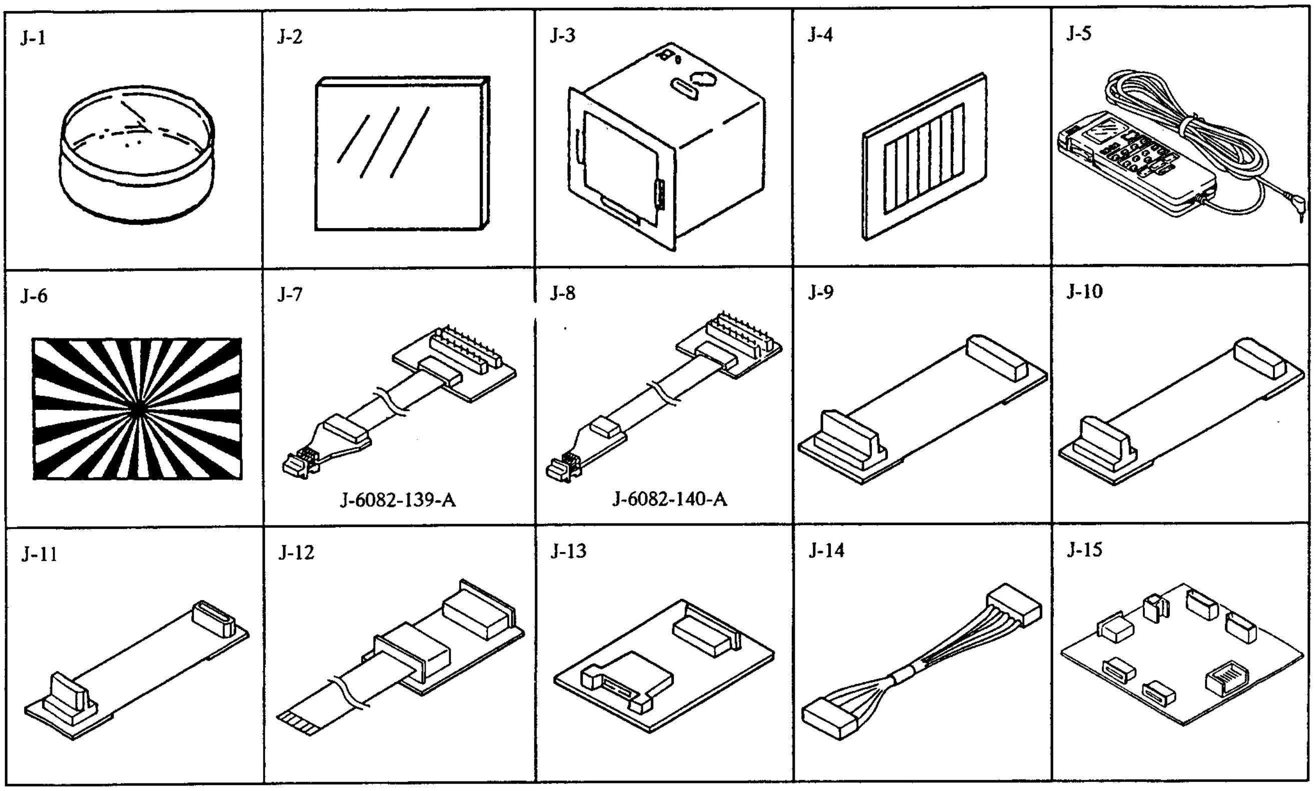

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-6082-139-A
J-8
J-6082-140-A
J-9
J-10
J-11
J-12
J-13
J-14
J-15

Fig. 7-1.

7-1-2. Preparations

Note 1: For further details of how to remove the cabinet and each board, refer to "2. Disassembly".

Note 2: When adjusting only, the lens block and VC-129 board need not be taken apart.

1) Connect the equipments for adjusting as shown in Fig. 7-3.
2) The EVF (Electronic viewfinder) is required for checking the white balance mode and shutter speeds. However, by tuming on the "data screen", the same contents can be viewed on the TV monitor. If the EVF is not required, remove CN303 of the VC-129 board.

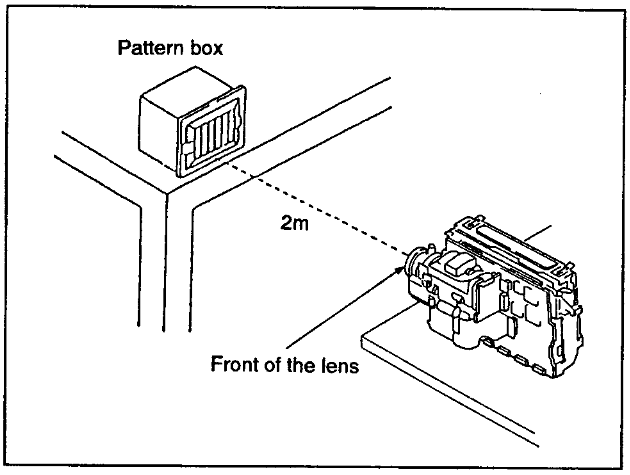

Pattern box
2m
Front of the lens

Fig. 7-2.

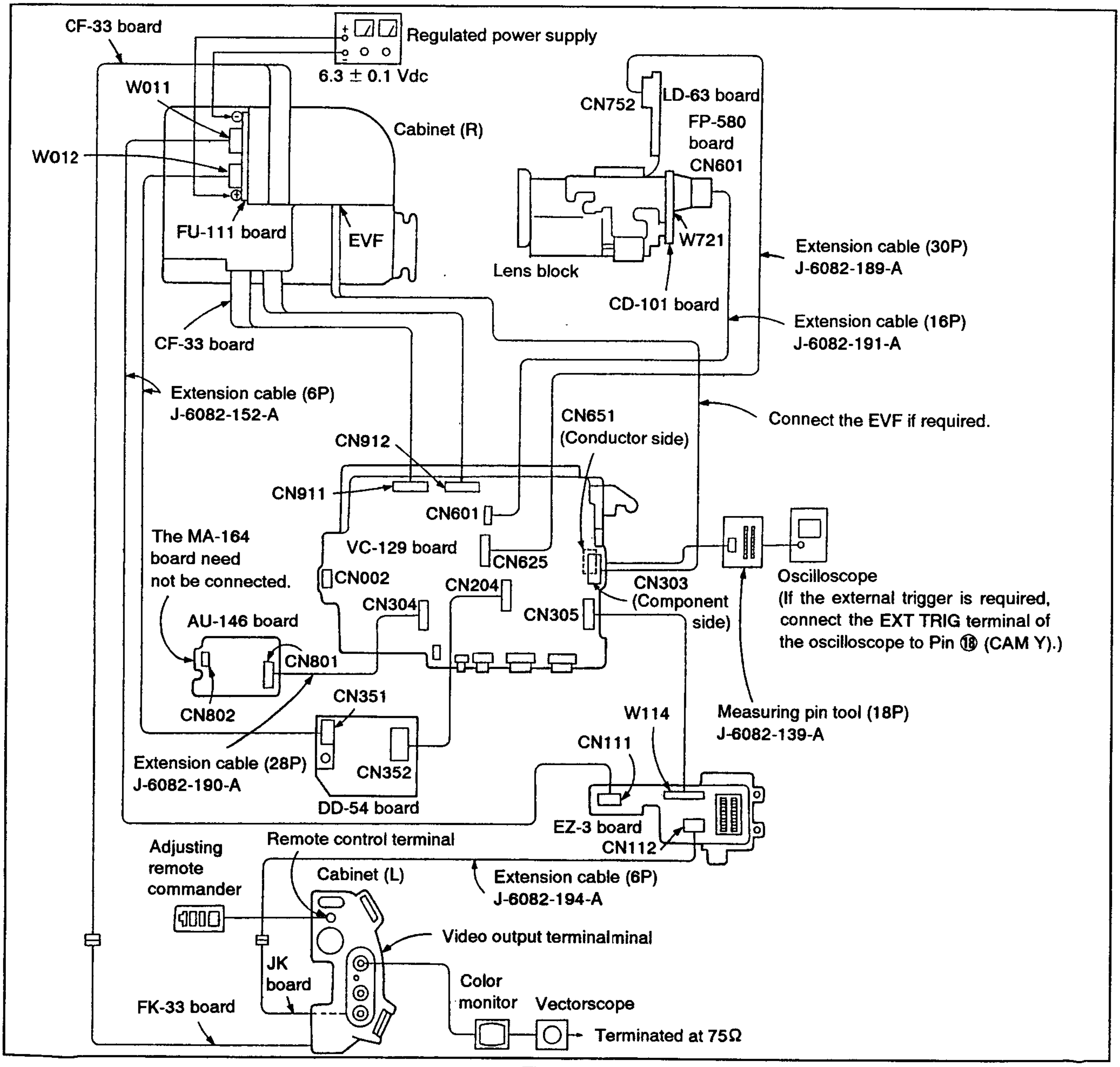

CF-33 board
Regulated power supply
6.3 ± 0.1 Vdc
W011
W012
Cabinet (R)
CN752
LD-63 board
FP-580 board
CN601
FU-111 board
EVF
Lens block
W721
CD-101 board
Extension cable (30P)
J-6082-189-A
Extension cable (16P)
J-6082-191-A
CF-33 board
Extension cable (6P)
J-6082-152-A
CN651
(Conductor side)
Connect the EVF if required.
CN912
CN911
CN601
The MA-164 board need not be connected.
VC-129 board
CN625
CN002
CN204
CN303
(Component side)
CN304
CN305
AU-146 board
CN801
CN802
Oscilloscope
(If the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to Pin ⑱ (CAM Y).)
CN351
W114
Measuring pin tool (18P)
J-6082-139-A
CN111
Extension cable (28P)
J-6082-190-A
CN352
DD-54 board
EZ-3 board
CN112
Adjusting remote commander
Remote control terminal
Cabinet (L)
Extension cable (6P)
J-6082-194-A
Video output terminalminal
JK board
Color monitor
Vectorscope
FK-33 board
Terminated at 75Ω

Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

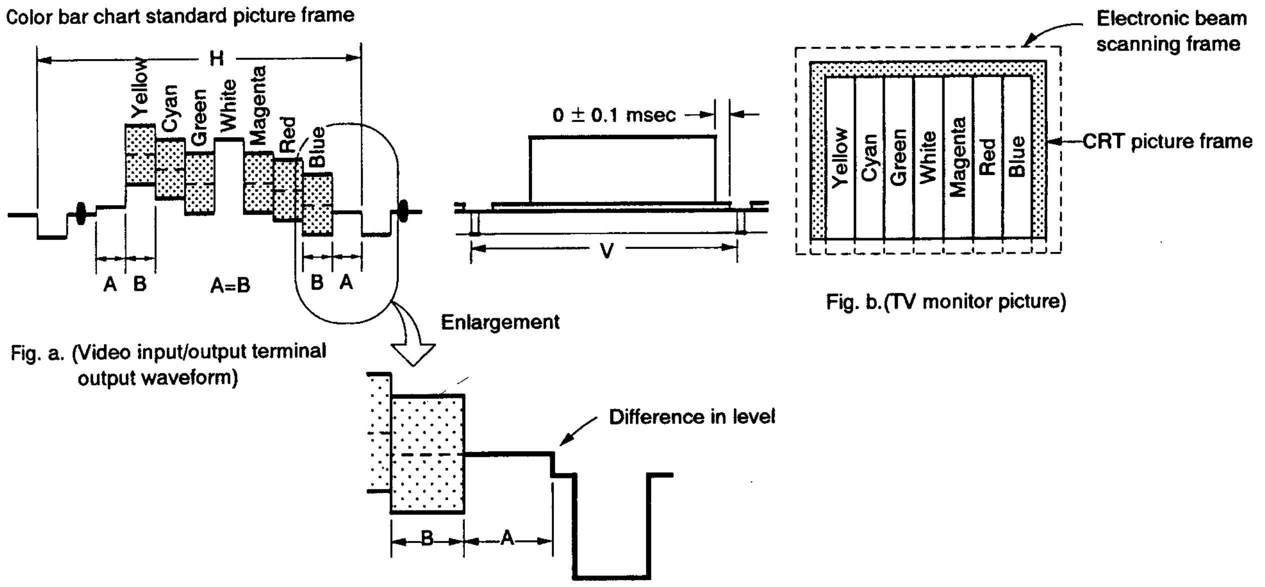
1. Camera/player power switch (CF-33 board S114) ····Camera
2. Standby switch (CF-33 board S113) ···················· Standby
3. Auto lock cover (CF-33 board S108) ······················ Open
4. Focus button (CF-33 S101) ································Manual
5. Program AE button (CF-33 board S103)·····················Off
6. Exposure button (CF-33 board S102)················ Automatic

2. Adjusting Procedure

Adjust in the given order.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and adjust the zoom lever so that the white pattern is the same size and at the same position as the color bar chart (Standard picture frame).


Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
Fig. a. (Video input/output terminal output waveform)
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 7-4.

3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm× 841 mm) imitation Japanese vellum to a black one, and make the chart shown in Fig. 4-5.

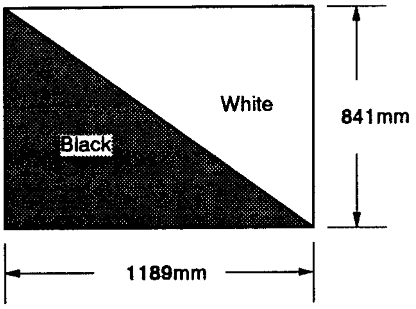

White
Black
841mm
1189mm

Fig. 7-5.

Note: Use non-reflecting and matted imitation Japanese vellum that are above A0. When making the chart, make sure that the line between the black and white is even.

7-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC-129 board IC654). This is controlled by the camera micro processor (VC-129 board IC653), which reads the data written in the nonvolatile memory (VC-129 board IC651: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote control terminal (JK board).
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-6.

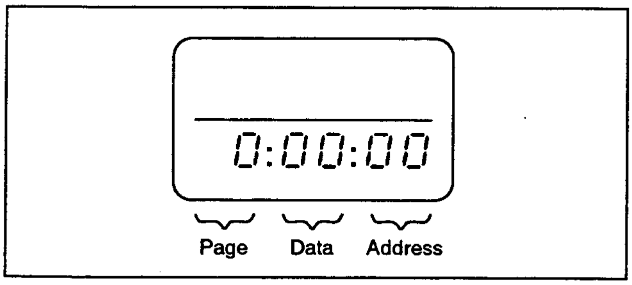


Fig. 7-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

   - Changing the address
     The address increases when the FF (▸▸) button is pressed, and decreases when the REW (◂◂) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and enables the camera section (Addresses 01 to DF of page F) to be adjusted.
5) After completing all adjustments, turn off the main power supply (6.3V) once. This releases the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

7-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing “Page F Data Initialization” and “Page F Data Modification”. They are different from the values after executing all adjustments.

Note 3: In some cases, data have been input to the page F addresses D0 to EF. This has no relation to the adjustments.

Address	**Name**	**Function** **[ ] contains the adjustment voltage output terminal**	**Adjustment data**	
			Initial value	**Memo column**
00	SET ID	Set ID	40	40
01	NT PAL		01	01
02	FT SW	DDS display mode switching Data — Mode 00 — Normal B8 — Focus position adjustment	00	00
03	FADER LEVEL	AE REF level change in fader	E0	E0
04	FADER ENDTIM	AE REF modulation time setting in fader	10	10
05	CORE Y GAIN	Not used (Camera micro processor versions 1 and 2) Camera core Y gain (camera micro processor version 3)	3C	3C
06	VSUB	CCD imager V SUB voltage adjustment [IC654 ③]	80	
07	VPGH	CCD imager PG voltage adjustment [IC654 ④]	80	
08	VREF Y	Camera core Y D/A reference voltage, SYNC level adjustment [IC654 ⑤]	7D	
09	VREF C	Camera core camera D/A reference voltage, burst level adjustment [IC654 ⑥]	61	
0A	HALL GAIN	Hall amplifier gain adjustment [IC654 ⑦] } HALL adjustment	80	
0B	HALL OFFSET	Hall amplifier off set adjustment [IC654 ⑧]	80	
0C	LOWLIGHT START	Low illuminance level modulation start setting	6A	6A
0D	REF 2V	2V reference voltage for hall element [IC654 ⑫]	68	68
0E	AD REF	Black level during A/D conversion [IC654 ⑬]	A0	A0
0F	CORE DETH	CCD correction horizontal correlated control	04	04
10	CORE OTHER	Various camera core mode settings	54	54
11	CORE APCN4	Horizontal aperture setting	B5	B5
12	CORE APCN5	Vertical aperture setting	3F	3F
13	CORE EFFECT	Camera core special effects control	A0	A0
14	CORE MATR	RED matrix constant	6D	6D
15	CORE MATB	BLUE matrix constant	26	26
16	CORE BURST LEVEL	Burst level setting, color modulation ON/OFF Data — Mode 38 — Normal 3A — Color modulation stopped	38	38
17	CORE CHROMA DLY	Y/C delay adjustment	28	28
18	CORE Y SETUP	Set up level setting	02	02
19	CORE VHAPCN	Slice and level of aperture signal	05	05

Table 7-2 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal		Adjustment data	
				Initial value	Memo column
1A	CORE B Y3200 HUE	B–Y HUE	Color reproductivity adjustments	FA	
1B	CORE R Y3200 HUE	R–Y HUE		F1	
1C	CORE R Y3200 GAIN	R–Y GAIN		48	
1D	CORE B Y3200 GAIN	B–Y GAIN		22	
1E	CS APCCUT	Low illuminance aperture and chroma suppress level		22	22
1F	NEXT DEF BIT	CCD imager correction pattern	CCD imager correction data writing	00	
20	CCD DEFECT0	CCD imager correction data		00	
21	CCD DEFECT1	CCD imager correction data		00	
22	CCD DEFECT2	CCD imager correction data		00	
23	CCD DEFECT3	CCD imager correction data		00	
24	CCD DEFECT4	CCD imager correction data		00	
25	CCD DEFECT5	CCD imager correction data		00	
26	CCD DEFECT6	CCD imager correction data		00	
27	CCD DEFECT7	CCD imager correction data		00	
28	CCD DEFECT8	CCD imager correction data		00	
29	CCD DEFECT9	CCD imager correction data		00	
2A	CCD DEFECT10	CCD imager correction data		00	
2B	CCD DEFECT11	CCD imager correction data		00	
2C	CCD DEFECT12	CCD imager correction data		00	
2D	CCD DEFECT13	CCD imager correction data		00	
2E	CCD DEFECT14	CCD imager correction data		00	
2F	CLPFLG	Digital clamp mode setting		00	00
30	ADMIN	Offset minimum value setting		50	50
31	C SHIFT	C shift amount setting		02	02
32	Y SHIFT	Y shift amount setting		02	02
33	LOWLIGHT START2	Low illuminance REF level modulation start setting 2		80	80
34	LOWLIGHT CS	Low illuminance color erasure setting		80	80
35	LOWLIGHT LEVEL			F0	F0
36	DEFECT DELAY			00	00
37				00	00
38	R3200 H	3200k Red reference data H	Auto white balance reference data input	9D	
39	R3200 L	3200k Red reference data L		09	
3A	B3200 H	3200k Blue reference data H		56	
3B	B3200 L	3200k Blue reference data L		CF	
3C	G3200 H	3200k Green reference data H		7A	
3D	G3200 L	3200k Green reference data L		8E	
3E	RCONTREF	3200k RCONT adjustment value	Pre-white balance adjustment	36	
3F	BCONTREF	3200k BCONT adjustment value		55	
40	NORM R	R regular correction coefficient, reference 80h	Auto white balance adjustment	8F	
41	NORM B	B regular correction coefficient, reference 40h		6C	
42	SHUT IN	Indoor determination shutter data		A8	A8
43	SHUT OUT	Outdoor determination shutter data		A0	A0
44	IRIS IN	Indoor determination hall data	IRIS IN/OUT adjustment	7D	
45	IRIS OUT	Outdoor determination hall data		85	

Table 7-2 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
46	G LEVEL	High luminance Green integral level	02	02
47	G WIDTH	High luminance Green integral level range	03	03
48	MAT HUE	Variable linear matrix HUE coefficient } Linear matrix adjustment	00	
49	MAT GAIN	Variable linear matrix GAIN coefficient	00	
4A	ADJ RCONT		35	35
4B	B DIFFERENCE	Reference difference from outdoor fixed value	0A	0A
4C	BOTTOM SLP R	Slant R coefficient of drawing frame bottom	30	30
4D	BOTTOM SLP B	Slant B coefficient of drawing frame bottom	58	58
4E	MIDDLE SLP R	Slant R coefficient of drawing frame middle	62	62
4F	MIDDLE SLP B	Slant B coefficient of drawing frame middle	47	47
50	TOP SLP R	Slant R coefficient of drawing frame top	6C	6C
51	TOP SLP B	Slant B coefficient of drawing frame top	1A	1A
52	KEIKO R	Slant R coefficient of drawing frame fluorescent lamp	66	66
53	KEIKO B	Slant B coefficient of drawing frame fluorescent lamp	18	18
54	BOTTOM UP	Upper value of drawing frame bottom	8C	8C
55	BOTTOM DWN	Lower value of drawing frame bottom	6B	6B
56	MIDDLE UP	Upper value of drawing frame middle	B8	B8
57	MIDDLE DWN	Lower value of drawing frame middle	9F	9F
58	TOP UP	Upper value of drawing frame top	80	80
59	TOP DWN	Lower value of drawing frame top	66	66
5A	KEIKO	Lower value of output frame fluorescent lamp output	6C	6C
5B	KEIKO DWN	Lower value of drawing frame fluorescent lamp	5C	5C
5C	R TOP LMT	Upper value of drawing frame R	6C	6C
5D	R DWN LMT	Lower value of drawing frame R	20	20
5E	B TOP LMT	Upper value of drawing frame B	83	83
5F	B IN TOP	Upper value of INDOOR drawing frame B	67	67
60	B IN MAX	Upper value of INDOOR output frame B	5C	5C
61	B OUT MIN	Lower value of OUTDOOR output frame B	5C	5C
62	B OUT DWN	Lower value of OUTDOOR drawing frame B	4A	4A
63	B DWN LMT	Lower value of drawing frame B	20	20
64	ADJ BCONT		50	50
65	T M DIVID	Border between top and middle of drawing frame	5B	5B
66	B M DIVID	Border between middle and bottom of drawing frame	3C	3C
67	DELAY TIME	Auto white balance tracking speed Data — Mode 0C — Normal 01 — High speed tracking	0C	0C
68	B IN MIN	INDOOR output frame B bottom	33	33
69	OUT HYS OFF	OUTDOOR hysteresis off difference	0C	0C
6A	OUT B HYS	OUTDOOR hysteresis amount	06	06
6B	AWB MODE	Auto white balance adjustment mode Data — Mode 00 — Normal D0 — AWB adjustment F1 — AWB all tracking	00	00

Table 7-2 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
6C	IN B HYS		04	04
6D	IN R HYS		02	02
6E	KAKE NORM R		20	20
6F	KAKE NORM B		40	40
70	AE REF1		00	00
71	AE REFH		1B	1B
72	AGC MIN		F6	F6
73	AE MIN1	MAX GAIN adjustment	23	
74	AE MAX 1		80	80
75	IRIS OFFSET		D0	D0
76	E AE KEISU		00	00
77	AE FUNCTION		02	02
78	BL HOSEI		40	40
79	JITEISU DOWN		28	28
7A	JITEISU UP		0D	0D
7B	AE KNEE		FF	FF
7C	ORETEN SET		13	13
7D	OMOMIOUT		40	40
7E	AFC WIDE		03	03
7F	AFC GAIN		01	01
80	AFC LIMIL		60	60
81	HIST P KEISU		20	20
82	HIST H KEISU		E0	E0
83	HIST L KEISU		90	90
84	GYAKOU JITEISU		08	08
85	SABUN LIMIT		40	40
86	FUZZY RULE1		90	90
87	FUZZY RULE2		C0	C0
88	FUZZY RULE3		B0	B0
89	FUZZY RULE4		A0	A0
8A	FUZZY RULE5		70	70
8B	FUZZY RULE6		80	80
8C	FUZZY RULE7		A0	A0
8D	FUZZY RULE8		98	98
8E	FUZZY RULE9		90	90
8F	FUZZY RULE10		78	78
90	IRIS MINL		42	42
91	IRIS MINH		02	02
92	DELTA SHUTGAIN		04	04
93	DOORLEVEL H		04	04
94	DOORLEVEL L		D2	D2
95	ZOOM DROP1	ZOOM1=F-No. drop correction by 1	4B	4B
96	ZOOM DROP2	ZOOM1=F-No. drop correction by 1	60	60
97	OMONI2	Weighting by changing to three frames (Surrounding Frame)	FF	FF

Table 7-2 (4).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
98		Not used	00	00
99	ZOOM LANC SPEED	LANC zoom speed	02	02
9A	AF FT SW	Impose tool display switching	00	00
9B	MAN CONTROL	Manual focus variable bit-3 threshold bit-7 sensitivity	33	33
9C	AF MODE SW	Test SW	00	00
9D	OFF FC	Focus offset lower Flange back adjustments	00	
9E	OFF FC	Focus offset upper	2C	
9F	LENZ WIDE	Zoom wide end lower	00	
A0	LENZ WIDE	Zoom wide end upper	01	
A1	LENZ TELE	Zoom tele end lower	E0	
A2	LENZ TELE	Zoom tele end upper	02	
A3	MF SPEED	Manual focus gain	48	48
A4	ZM SPEED10	Zoom speed	98	98
A5	ZM SPEED32	Zoom speed	A0	A0
A6	ZM SPEED54	Zoom speed	21	21
A7	ZM SPEED76	Zoom speed	64	64
A8	ZM HYS	Zoom speed hysteresis	00	00
A9	Z PHASE	Focus mechanism end, flange back adjustment	08	
AA	FCLIM	Focus NEAR limit	00	00
AB	ADJ0	For adjusting (ZOOM OFF MODE) Data Mode FE Normal 01 Zoom position fixed	FE	FE
AC	ADJ1	For adjusting (WND A)	1E	1E
AD	ADJ2	For adjusting (WND B)	5A	5A
AE	ADJ3	For adjusting	00	00
AF	AF0	Noise threshold	55	55
B0	AF1	Focus motor movement amount	12	12
B1	AF2	Core ring amount	04	04
B2	AF3	Noise level	30	30
B3	AF4	Climbing threshold	30	30
B4	AF5	Wobbling amplitude	55	55
B5	AF6	Wobbling IIR coefficient	03	03
B6	AF7	Sync detection phase	01	01
B7	AF8	Focus trigger phase	23	23
B8	AF9	Wobbling FIR coefficient	03	03
B9	AF10	AF speed threshold	18	18
BA	AF11	Wobbling amplitude for testing	00	00
BB	AF12	High luminance gate level	FA	FA
BC	AF13	Motor speed for testing	FF	FF
BD	AF14	AF frame for testing	00	00
BE	AF15	AGC gain 0 to 3V	0A	0A
BF	AF16	AGC gain 3 to 5V	10	10

Table 7-2 (5).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
C0	AF17	AND for testing	FF	FF
C1	AF18	AF ID for testing	00	00
C2	AF19	Hall data CLOSE	A8	A8
C3	AF20	Hall data MIDDLE	9A	9A
C4	AF21	Hall data OPEN	7F	7F
C5	AF22	High luminance threshold bit 7-4 HB0 bit3-0 fH	84	84
C6	LINEAR0	Linear motor integral gain	02	02
C7	LINEAR1	Linear motor DC bias value	04	04
C8	LINEAR2	DC bias speed THR	20	20
C9	LINEAR3	Linear motor integral THR lower	18	18
CA	LINEAR4	Reset THR	98	98
CB	LINEAR5	Error amount THR	20	20
CC	LINEAR6	Speed THR	20	20
CD	LINEAR7	Linear motor proportionate gain	DA	DA
CE	LINEAR8	MR output THR	3C	3C
CF	LINEAR9	Micro step number	07	07
D0~EF		Not used (Note 3)	FF	FF
F0		Column for inputting unit's ID No, etc. Not related to unit's operations.	FF	
F1			FF	
F2			FF	
F3			FF	
F4			FF	
F5			FF	
F6			FF	
F7			FF	
F8			FF	
F9			FF	
FA			FF	
FB			FF	
FC			FF	
FD			FF	
FE			FF	
FF			FF	

Table 7-2 (6).

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. (The data of these pages can be set temporarily. When the main power supply (6.3V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

1. Page 6

Address	Adjustment Mode	Data	Function
00	Page F protect	00	Normal (Protect released)
		01	Protect release of address 01 to DF of Page F
01	Camera adjustment switch	00	Normal
	Note: To execute this address	01	IRIS OPEN, AGC HOLD
	adjustment mode, it is	03	IRIS CLOSE1, AGC HOLD
	necessary to press the	05	IRIS CLOSE2, AGC MIN
	PAUSE button of the	07	IRIS CLOSE3, AGC MAX
	adjusting remote	09	ND0.5 SHUTTER (PAL=1/160, NTSC=1/190)
	commander after setting	0B	ND0.8 SHUTTER (PAL=1/320, NTSC=1/380)
	the data.	0D	AWB PRESET1: 3200K PRESET DATA input
		0F	WB 3200K PRESET: Indoor white balance mode
		11	AWB PRESET2: 3200K PRESET DATA input preparations
		13	Flange back adjustment preparations
		15	Flange back adjustment execution
		17	1/2000 shutter mode
		19	MAX GAIN adjustment mode
		2D	EEPROM PRE WRITE: Page F, page E initial data writing
02	DDS display switching	00	Normal
		03	HALL DATA display
		04	R ratio display
		05	B ratio display
		0B	ZOOM switch A/D value display
		0C	Auto focusing display (01: Focusing, 00: Not focusing)
03	Weighting on/off	01	Weighting off
		10	Normal (Weighting on)
11	Page F data initialization completed display	00	Normal (Data can be initialized)
		01	Data initialized
12	Shutter mode	00	Normal
		19	1/4000 shutter mode
21	Flange back adjustment completed display	00	Normal (Flange back adjustable)
		01	Flange back adjusted
25	Auto focus on/off	00	Normal
		01	Auto focus off
26	MR sensor output check	00 08	Normal
		Others	Abnormal

Table 7-3.

2. Page 2

Category	Address	Adjustment Mode	Data	Function
01	37	VH address L		Title horizontal/vertical position (L)
01	38	VH address H		Title horizontal/vertical position (H)
01	39	Data transmission to SG	00	Normal
			01	Data transmission to SG begins

Note: The category is specified by the data of page 2, address 00.

(Example) To specify category 01, adjust to 01 the data of page 2, address 00.

Table 7-4.

7-1-7. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated at CN651 of the VC-129 board. Connect the oscilloscope, etc. via the measuring pin tool (J-6082-139-A). The following table lists the pin numbers and the signal names of CN651.

Pin No.	Signal Name	Pin No.	Signal Name
1	D5V	2	LANC SIG
3	ZOOM SW	4	CAM SI
5	$\overline{\text{CS EEPROM}}$	6	CAM SO
7	LI 3V	8	$\overline{\text{CAM SCK}}$
9	$\overline{\text{CS CORE}}$	10	GND
11	LANC DC	12	VIDEO GND
13	V SUB CHK	14	C OUT
15	PG CONT	16	GND
17	VIDEO OUT	18	Y OUT

Table 7-5.

7-1-8. Data Processing

For some adjustments, the DDS display and the display data of the adjusting remote commander (hexadecimal numeral) must be calculated in order to obtain the adjustment data. In this case, after converting the hexadecimal numeral to a decimals numeral once, calculate and convert the result to a hexadecimal numeral, and use it as the adjustment data. Table 7-6 is the hexadecimal-decimal calculation table.

Hexadecimal-Decimal Conversion Table

②

The lower digits of the hexadecimal / The upper digits of the hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) contains the display of the adjusting remote commander.

(Example) When the DDS display or the display of adjusting remote commander is BD (b d).
As the upper digit of the hexadecimal numeral is B(b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the decimal numeral to be calculated.

Table 7-6.

7-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjusting points when replacing main parts

When replacing the CCD imager or lens block, adjust the items indicated by ○ in the following table.

	When CCD imager is replaced	**When lens block is replaced**
V SUB adjustment	○	
V RG adjustment	○	
HALL adjustment		○
CCD imager correction data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Pre-white balance adjustment	○	
Auto white balance balance reference data input	○	
Auto white balance adjustment	○	
Color reproductivity adjustment	○	
Linear matrix adjustment	○	

2. Power supply voltage check (DD-54 board)

Subject	Arbitrary
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ⑤ and ⑥ of CN352
Specified value	4.90 ± 0.15 Vdc
D4V check	
Measurement point	Pin ③ of CN352
Specified value	3.95 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pin ① of CN352
Specified value	4.85 ± 0.15 Vdc
15V check	
Measurement point	Pin ④ of CN352
Specified value	15.0 ± 0.4 Vdc
–8.5V check	
Measurement point	Pin ② of CN352
Specified value	–8.5 ± 0.5 Vdc

Checking Method:

1) Check that each power supply voltage satisfies the specified value.
If not, refer to "Video circuit, Power supply block adjustment".

3. Page F data initialization

Note: If the page F data has been initialized, all adjustments of the camera section must be carried out again.

Initializing method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply (6.3V)	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	01	2D	Press the PAUSE button. (Initializing the page F data. The data of addresses 01 to EF of page F will be initialized.)	
4	6	11		Check that the data is 01. (Display of data initialized.)	

Note: Initialize page F only when the nonvolatile memory (VC-129 board IC651 EEPROM) has been replaced.

Processing after initializing

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing of initialization mode)	
2				After "Page F Data Modifications", carry out all adjustments of the camera section.	

Related Adjustments:
All camera adjustments of the camera section excluding "28 MHz origin oscillation adjustment".

4. Page F data modification

Some parts of the data (initial data) automatically written on page F by the initialization of the page F data will differ according to the version of the camera micro processor. Change the data manually, and arrange it.

Modification method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	01 (NT PAL)	01	Set each data to each address, and press the PAUSE button.	
		05 (CORE Y GAIN)	3C		
		0C (LOWLIGHT START)	6A		
		16 (CORE BURST LEVEL)	38		
		17 (CORE CHROMA DLY)	28		
		18 (CORE Y SETUP)	02		
		19 (CORE VHAPCN)	05		
		67 (DELAY TIME)	0C		
		71 (AE REFH)	1B		
		77 (AE FUNCTION)	02		
		79 (JITEISU DOWN)	28		
		7A (JITEISU UP)	0D		
		9E (OFF FC)	2C		
		A7 (ZM SPEED 76)	64		
		B7 (AF8)	23		
		CE (LINEAR 8)	3C		
		CF (LINEAR 9)	07		

Remarks: The versions of the camera micro processor (VC-129 board IC653) and the AF micro processor (LD-63 board IC751) can be distinguished using the following table.

- **Camera Micro processor**

Page	Address	Data	
6	10	11	Version 1
		12	Version 2
		13	Version 3

- **AF Micro processor**

Page	Address	Data	
6	20	11	Version 1
		12	Version 2
		13	Version 3
		14	Version 4

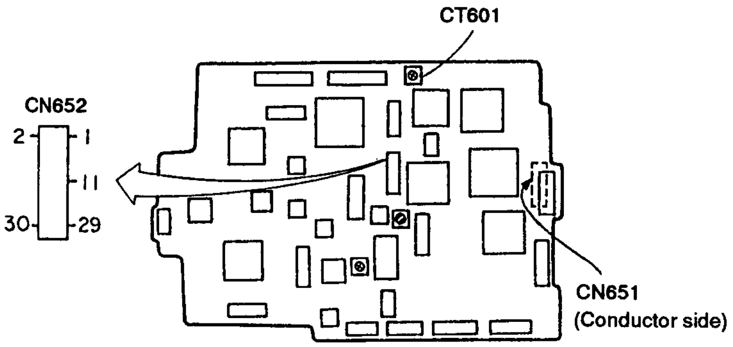
Note: Check that camera micro processor version 3 and AF micro processor version 4 have been provided as micro processors for correction.

5. 28 MHz origin oscillation adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑪ of CN652 (CL)
Measuring Instrument	Frequency counter
Adjusting Element	CT601
Specified Value	14187500 ± 71 Hz

Adjusting method:

Order	Adjusting element	Procedure	Conditions
1	CT601	Adjust the oscillation frequency to the	


CT601
CN652
2
1
11
30
29
CN651
(Conductor side)

VC-129 Board (Component Side)

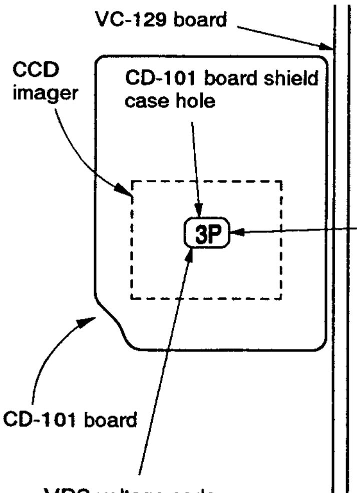
Fig. 7-7.

6. V SUB adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑬ of CN651 (V SUB CHK)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	06 (V SUB)
Specified Value	(Imager displayed voltage) ± 0.1 Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	06		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑬ of CN651 to the specified value.	
3	F	06		Press the PAUSE button.	



(Example)
When the display is 3P:
VRG voltage specified value=2.0 ± 0.1 Vdc
VSUB voltage specified value=13.5 ± 0.1 Vdc.

VRG voltage code

Code	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code

Code	Voltage (Vdc)
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

Fig. 7-8.

Related Adjustments:
"MAX GAIN adjustment", "Pre-white balance adjustment", "Auto white balance data input", "Auto white balance adjustment", "Color reproductivity adjustment", "Linear matrix adjustment".

7. VRG adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑮ of CN651 (PG CONT)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	(Imager displayed voltage) ± 0.1 Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	07		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑮ of CN651 to the specified value.	
3	F	07		Press the PAUSE button.	

8. CCD imager correction data writing

Subject	Not required
Adjustment Page	F
Adjustment Address	1F to 2E (CCD-DEFECT)

Write the CCD imager correction data in the following cases.

1. When the CCD imager has been replaced
2. When the camera EEPROM (VC-129 board IC651) has been replaced
3. When the page F data has been initialized

In the case of 1, as the CCD imager for repair does not require the correction data, adjust the data of addresses 1D to 2C of page F and those of addresses E0 to EF of page D to “00”.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	1F~2E		Set data 00 to each address, and press the PAUSE button.	
3	**1**	**00**	**01**	Releasing of page D protect.	
4	D	E0~EF		Set data 00 to each address, and press the PAUSE button. (Writing the backup data)	

In the case of 2 and 3, read the CCD imager correction data written on addresses E0 to EF in page D and write them in addresses 1F to 2E.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	D	E0~EF		Read the CCD imager correction data.	
3	F	1F		Set the data of address E0 of page D, and press the PAUSE button.	
		20		Set the data of address E1 of page D, and press the PAUSE button.	
		21		Set the data of address E2 of page D, and press the PAUSE button.	
		⋮		⋮	
		2E		Set the data of address EF of page D, and press the PAUSE button.	

9. HALL adjustment

Subject	Not required
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0A (HALL GAIN) 0B (HALL OFFSET)
Specified Value	33 to 37 during IRIS OPEN B8 to BC during IRIS CLOSE

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	02	03	Set the HALL DATA display mode.	
3	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
4	F	0B	80	Press the PAUSE button. (HALL OFFSET data initial setting)	
5	F	0A	40	Read the DDS display data (Note 1) and take it as W2.	IRIS CLOSE mode
6	F	0A	30	Read the DDS display data and take it as W1.	IRIS CLOSE mode
7	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
8	F	0A	30	Read the DDS display data and take it as K1.	IRIS OPEN mode
9	F	0A	40	Read the DDS display data and take it as K2.	IRIS OPEN mode
10				Convert W1, W2, K1, K2 to decimal numerals, and obtain W1′, W2′, K1′, K2′. (Refer to Table 7-7. “Hexadecimal-Decimal Conversion Table”)	
11				Calculate X1′ using the following equations (Decimal calculation). $A'=W2'+K1'-W1'-K2'$ ·········· Equation 1 $B'=W1'-K1'$ ···················· Equation 2 $X1'=\frac{2128+(48\times A')-(16\times B')}{A}$ ······ Equation 3	
12				Convert X1′ to a hexadecimal numeral, and obtain X1. (Round off to a whole number)	
13	F	0A		Set the data to X1 (obtained at step 12).	
14	F	0A		Press the PAUSE button.	
15	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to 35.	IRIS OPEN mode
16	F	0B		Press the PAUSE button.	
17	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
18				If the DDS display data is B8 to BC, it indicates the end of adjustments. Perform “Processing after Adjustments”. If not, carry out step 19 onwards with the DDS display data as W0.	IRIS CLOSE mode

Note 1: Lower 2 digits of the data displayed at the bottom right of the EVF or TV monitor.

Order	Page	Address	Data	Procedure	Conditions
19				Convert W0 to a decimal numeral, and obtain W0′.	
20				Calculate X2′ using the following equations (decimal numeral calculation). $C' = W0' - B' - 53$ ···················· Equation 4 $X2' = \frac{(133 - B') \times (X1' - 48) + 48 \times C'}{C'}$ ···· Equation 5 (X1′ and B′ are values obtained from equations 2 and 3 at step 11)	
21				Convert X2′ to a hexadecimal numeral, and obtain X2. (Round off to a whole number)	
22	F	0A		Set the data to X2 (obtained at step 21).	
23	F	0A		Press the PAUSE button.	
24	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to BA.	IRIS CLOSE mode
25	F	0B		Press the PAUSE button.	
26	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
27				Check that the DDS display data is 33 to 37.	IRIS OPEN mode

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE/OPEN mode)	

Related Adjustments:
“IRIS IN/OUT adjustment”.

10. Flange back adjustment

Subject	Chart for flange back adjustment Placed 2000 ± 5 mm in front of the lens Illuminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	9D (OFF FC), 9E (OFF FC), 9F (LENS WIDE), A0 (LENS WIDE), A1 (LENS TELE), A2 (LENS TELE), A9 (Z PHASE)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	9D	00	Set the initial data, and press the PAUSE button.	
		9E	2C		
		9F	00		
		A0	01		
		A1	E0		
		A2	02		
		A9	08		
3				Check that the center of the flange back adjustment chart coincides with that of the exposure display at both the zoom lens TELE end and the WIDE end.	
4	6	21		Check that the data is 00. (Flange back adjustable display)	
5	6	01	13	Press the PAUSE button.	
6	6	01	15	Press the PAUSE button. (This enables adjustments to be carried out automatically. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 9D to A2, A9.)	
7	6	21		Check that the data is 01. (Display indicating that flange back adjustment has completed.)	

Processing after Adjustments:

Order	Procedure
1	Turn on the main power supply (6.3V). (Out of focus if this is not carried out.)

11. Flange back check

Subject	Siemens star (Placed 2m in front of the lens)
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Specified Value	X–Y= ± 0123

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Place the Siemens star 2m in front of the lens.	
2				Open the auto lock cover.	
3				Set the "Exposure" to "Manual", rotate the "Exposure" adjusting dial to + so that the IRIS opens.	
4				Adjust the luminance intensity for the Siemens star so that the optimum image is obtained.	
5				Expose the Siemens star at the TELE end.	
6				Press the "Focus" button, and turn on the auto focus.	
7	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
8				Press the "Focus" button and turn off the auto focus.	
9				Expose the Siemens star at the WIDE end.	
10	**6**	**00**	**01**	**Releasing of protect.**	
11	6	02	00		
12	F	02	B8	Press the PAUSE button. (Setting the focus position display mode)	
13				Read the DDS display data and take it as X. (Example) DDS display...63 4500 X=6345	Zoom WIDE end Auto focus off
14				Press the "Focus" button, and turn on the auto focus.	
15	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
16	6	02	00	Read the DDS display (focus position display) data and take it as Y. (Example) DDS display...63 5B00 Y=635B	Zoom WIDE end Auto focus on Focusing condition
17				Check that X–Y= ± 0123. (X′–Y′= ± 291 when converted to a decimal numeral)	

Processing after Checking:

Order	Page	Address	Data	Procedure
1	F	02	00	Press the PAUSE button. (Releasing the focus position display mode)

12. SYNC level adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑱ of CN651 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	08 (VREF-Y)
Specified Value	A=150 ± 5 mV

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	05	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
3	F	08		Change the data with the PLAY and STOP buttons, and adjust the SYNC level to the specified value.	IRIS CLOSE mode
4	F	08		Press the PAUSE button.	

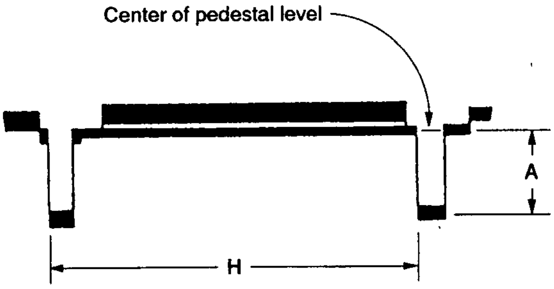


Fig. 7-9.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

13. Burst level adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑭ of CN651 (CAM C)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	09 (VREF-C)
Specified Value	A=150 ± 5 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	05	Press the PAUSE button (Setting the IRIS CLOSE mode)	
3	F	09		Change the data with the PLAY and STOP buttons, and adjust the burst level to the specified value.	IRIS CLOSE mode
4	F	09		Press the PAUSE button.	

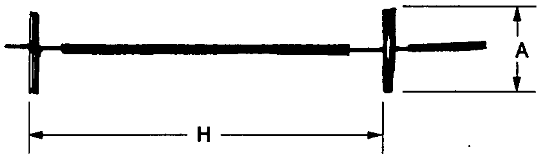


Fig. 7-10.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

Related Adjustments:
"Color reproductivity adjustment".

14. Picture frame setting

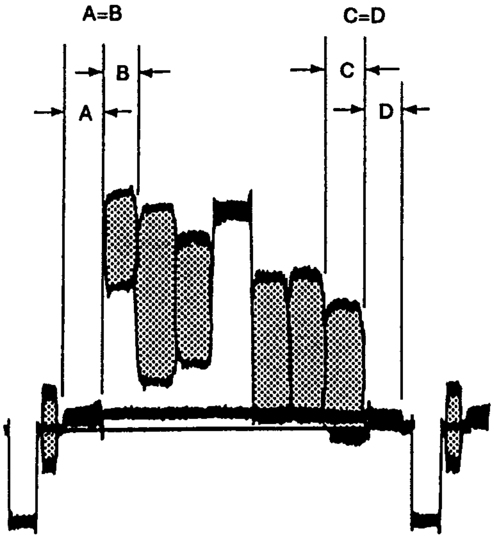
Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec.

Setting method:

Order	Procedure
1	Turn off the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust the direction of the zoom and camera, and set at the specified position.
4	Mark the position of the picture frame on the monitor display, and adjust it to this position if the "color bar chart standard picture frame" or "white pattern standard picture frame" is used in the following adjustments.

Checking with the oscilloscope

1. H cycle



2. V cycle

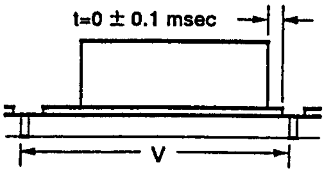


Fig. 7-11.

Checking on the TV monitor (Under scan mode)

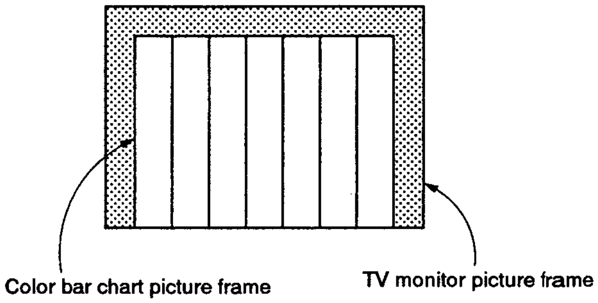


Fig. 7-12.

15. IRIS IN/OUT adjustment

Subject	White pattern standard picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 (IRIS IN) 45 (IRIS OUT)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	02	03	Setting of HALL DATA display mode.	
3	6	01	0B	Press the PAUSE button. (Setting the ND 0.8 shutter mode)	
4				Read the lower 2 digits of the DDS display data, and take it as D44.	ND 0.8 shutter mode
5	F	44		Adjust the data to D44 (obtained at step 4) with the PLAY and STOP buttons.	
6	F	44		Press the PAUSE button.	
7	6	01	09	Press the PAUSE button. (Setting the ND 0.5 shutter mode)	
8				Read the lower 2 digits of the DDS display data, and take it as D45.	ND 0.5 shutter mode
9	F	45		Adjust the data to D45 (obtained at step 8) with the PLAY and STOP buttons.	
10	F	45		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the ND 0.5 shutter mode.)	

16. Max gain adjustment (VC-129 board)

Subject	White pattern standard picture frame
Measurement Point	Pin ⑱ of CN651 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	73 (AE MIN L)
Specified Value	A=260 ± 10 mV

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	19	Press the PAUSE button. (Max gain adjustment mode)	
3	F	73		Change the data with the PLAY and STOP buttons, and adjust the CAM Y signal level (A) to the specified value.	MAX GAIN adjustment mode
4	F	73		Press the PAUSE button.	

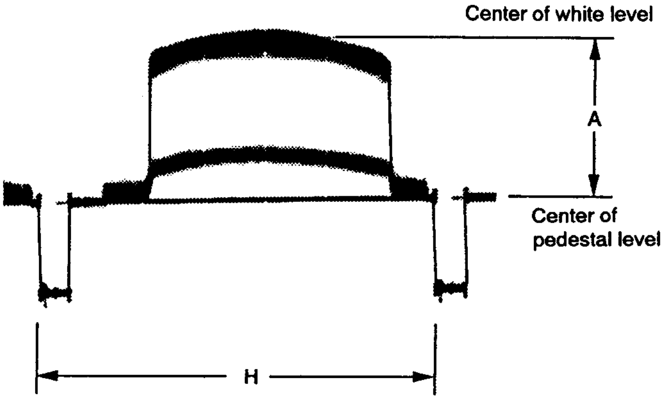


Fig. 7-13.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the max gain adjustment mode)	

17. Pre-white balance adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3E (R CONT REF), 3F (B CONT REF)
Specified Value	The center of the white luminance point should be within the circle with a 1 mm diameter which centers around the origin.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	1A	00	Press the PAUSE button.	
3	F	1B	00	Press the PAUSE button.	
4	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
5	F	3E 3F		Change the data alternately, and coincide the white luminance point with the origin. Before changing the address, press the PAUSE button.	WB 3200K preset mode
6	F	1A	FA	Press the PAUSE button.	
7	F	1B	F1	Press the PAUSE button.	

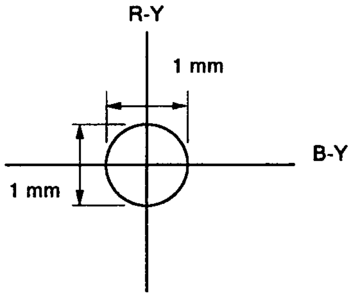


Fig. 7-14.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB3200K preset mode.)	

Related Adjustments:
"White balance reference data input", "Auto white balance adjustment", "Color reproductivity adjustment".

18. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	38 (R3200H), 39 (R3200L), 3A (B3200H), 3B (B3200L), 3C (G3200H), 3D (G3200L)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply (6.3V).	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	11		Check that the data is 00. (Display indicating that auto white balance reference data can be input)	
4	6	01	11	Press the PAUSE button. (Auto white balance reference data input preparation mode)	
5	6	01	0D	Press the PAUSE button. (The auto white balance reference data input will be executed and the data input automatically to addresses 38 to 3D of page F.)	
6	6	11		Check that the data is 01. (Display indicating that the auto white balance reference data input completed)	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the auto white balance reference data input mode)	
2				Perform “Auto White Balance Adjustment”.	

Related Adjustments:
“Auto White Balance Adjustment”.

19. Auto white balance adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	40 (NORM R), 41 (NORM B)
Specified Value	R ratio 2A80 ± 40 B ratio 6080 ± 40

Note: Perform this adjustment after "Auto White Balance Reference Data Input".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	6B	D0	Press the PAUSE button. (Setting the auto white balance adjustment mode)	
3	6	02	04	Setting of R ratio display mode.	R ratio display mode
4	F	40		Change the data with the PLAY and STOP buttons, and adjust the R ratio data of the DDS display to the specified value.	
5	6	02	05	Setting of B ratio display mode.	B ratio display mode
6	F	41		Change the data with the PLAY and STOP buttons, and adjust the B ratio data of the DDS display to the specified value.	
7	F	41		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance adjustment mode)	
2	6	02	00	Releasing of B ratio display mode.	

20. White balance check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filters 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-15. A to C

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the lens is not covered with either filter.	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4				Check that the white luminance point is within the circle shown in Fig. 7-15. A. (Setting the indoor white balance mode)	WB 3200K preset mode, no filter
5	6	01	00	Press the PAUSE button. (Releasing WB 3200K preset mode)	
6	F	67	01	Press the PAUSE button. (Setting the auto white balance high speed tracking mode)	
7				Check that the white luminance point is within the circle shown in Fig. 7-15. A.	Auto white balance high speed tracking mode, no filter
8				Place the C14 filter on the lens.	
9				Check that the white luminance point is within the circle shown in Fig. 7-15. B. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, C14 filter
10				Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) over the lens.	
19				Check that the white luminance point is within the circle shown in Fig. 7-15. C. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, ND filter 1.3

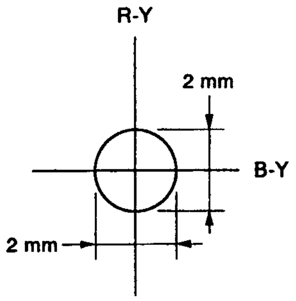


Fig. 7-15. A

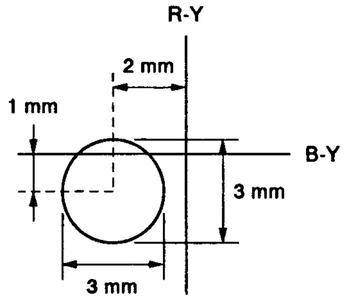


Fig. 7-15. B

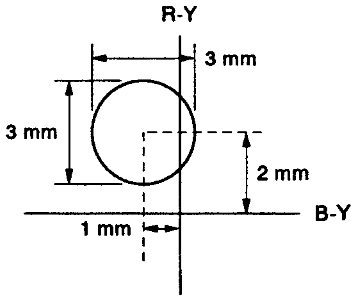


Fig. 7-15. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	67	0C	Press the PAUSE button. (Releasing the auto white balance high speed tracking mode)	

21. Color reproductivity adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	1A (CORE R-Y HUE) 1B (CORE B-Y HUE) 1C (CORE B-Y GAIN), 1D (CORE R-Y GAIN)
Specified Value	Each color luminance point should be within each color reproduction frame.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	03	00	Setting of weighting off mode.	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4	F	1A 1B 1C 1D		Change the data, and adjust so that each color luminance point is within each color reproduction frame. Press the PAUSE button for each address.	Weighting off mode WB 3200K preset mode

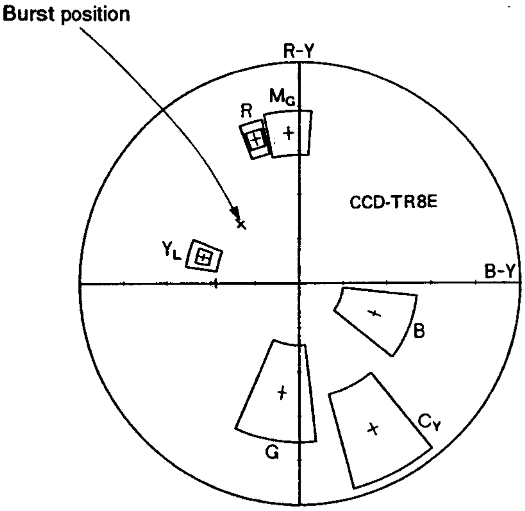


Fig. 7-16.

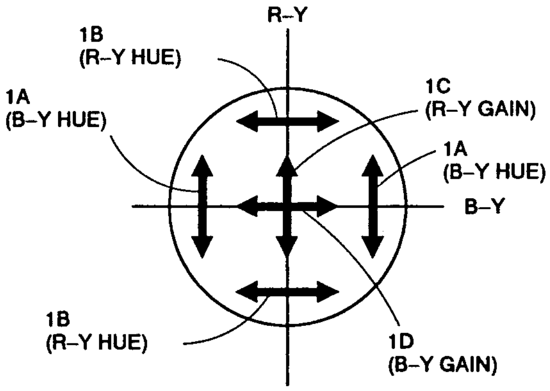


Fig. 7-17. Direction of the Movements of Adjustment Addresses and Luminance Points

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB 3200K preset mode)	
2	6	03	10	Set the normal mode (weighting on mode).	

Related Adjustments:
"Linear matrix adjustment".

22. Linear matrix adjustment

Subject	Color bar standard picture frame
Measurement Point	Filter C14 for color temperature correction
Measuring Instrument	DDS display on the EVF or TV monitor
Adjustment Page	
Adjustment Address	F
Specified Value	48 (DMAT HUE), 49 (DMAT GAIN)

Note: Before beginning adjustments, check that the color bar chart picture frame is at the position set in "14. Picture frame setting".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Remove the filter C14 for color temperature correction.	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	03	00	Setting of weighting off mode.	
4	6	02	02	Setting of color difference data display mode.	
5	F	16	3A	Press the PAUSE button. (Setting the color modulation stop mode)	
6	F	6B	F1	Press the PAUSE button. (Setting the auto white balance all area tracking mode)	
7	2	00	01	Selecting of page 2, category 01.	
	2	39	01	Setting of data transmission mode for SG.	
8	2	37	C9	Specifying of position of yellow.	
	2	38	B6		
9	F			Read the R–Y data (Y1) of the DDS display. (Note 1)	Specifying of position of yellow, no filter
10	2	37	59	Specifying of position of red.	
	2	38	6D		
11	F			Read the R–Y data (R1) of the DDS display. (Note 1)	Specifying of position of red, no filter
12				Cover the lens with the filter for color temperature correction. (Make sure that the picture frame of the color bar chart does not move.)	

Note 1: 2 digits of 4 digit number displayed at the bottom right of the EVF or TV monitor.

Y_1, Y_2, R_1, and R_2 are all above 80.

(Example) $00\ \ \underbrace{6A}_{\text{B-Y data}}\ \ \underbrace{87}_{\text{R-Y data}}$

As the R–Y data and B–Y data are displayed alternatively, it will be difficult to distinguish between the R–Y data and the B–Y data.

Record this data on a tape, and perform frame advancing playback so that only the R–Y data or the B–Y data is read.

(Example)

If the frame advancing playback is performed, the following will be displayed.

$63\underline{88} \rightarrow \underline{8B}61 \rightarrow 61\underline{8B} \rightarrow \underline{8A}63 \rightarrow$

$65\underline{89} \rightarrow \underline{8B}60 \rightarrow 60\underline{8A} \rightarrow \underline{89}63$

As the R–Y data is above 80, and the B–Y data is below 7F, the data which is underlined is the R–Y data.

If the average value is calculated, the R–Y data will become 8A and the B–Y data will becames 62.

<table>
<tr><th>Order</th><th>Page</th><th>Address</th><th>Data</th><th>Procedure</th><th>Conditions</th></tr>
<tr><td>13</td><td>F</td><td></td><td></td><td>Read the R–Y data (R2) of the DDS display. (Note 1)</td><td>Specifying of position of red, C14 filter</td></tr>
<tr><td rowspan="2">14</td><td>2</td><td>37</td><td>C9</td><td rowspan="2">Specifying of position of yellow.</td><td rowspan="2"></td></tr>
<tr><td>2</td><td>38</td><td>B6</td></tr>
<tr><td>15</td><td>F</td><td></td><td></td><td>Read the R–Y data (Y2) of the DDS display. (Note 1)</td><td>Specifying of position of yellow, C14 filter</td></tr>
<tr><td>16</td><td></td><td></td><td></td><td>Convert Y1, Y2, R1, R2 to decimal numerals to obtain Y1′, Y2′, R1′ and R2′.
(Refer to Table 7-7 “Hexadecimal-Decimal Conversion Table”)</td><td></td></tr>
<tr><td>17</td><td></td><td></td><td></td><td>Calculate X1′ from the following equations (decimal numeral calculation).
$X1'=Y2'-Y1'$</td><td></td></tr>
<tr><td>18</td><td></td><td></td><td></td><td>Calculate D48 from the following table.
(D48 is a hexadecimal numeral)
<table>
<tr><th>X_1' value</th><th>D_{48}</th></tr>
<tr><td>$-1 \leqq X_1' \leqq 1$</td><td>0F</td></tr>
<tr><td>$X_1' > 1$</td><td>1F</td></tr>
<tr><td>$X_1' < -1$</td><td>FF</td></tr>
</table></td><td></td></tr>
<tr><td>19</td><td>F</td><td>48</td><td></td><td>Adjust the data to D48 (obtained at step 18) with the PLAY and STOP buttons.</td><td></td></tr>
<tr><td>20</td><td>F</td><td>48</td><td></td><td>Press the PAUSE button.</td><td></td></tr>
<tr><td>21</td><td></td><td></td><td></td><td>Calculate X2′ from the following equations (decimal numeral calculation).
$X2'=R2'-R1'$</td><td></td></tr>
<tr><td>22</td><td></td><td></td><td></td><td>Calculate D49 from the following table.
<table>
<tr><th>X_2' value</th><th>D_{49}</th></tr>
<tr><td>$X_2' \geqq 0$</td><td>00</td></tr>
<tr><td>$0 > X_2' \geqq -1$</td><td>01</td></tr>
<tr><td>$-1 > X_2'$</td><td>02</td></tr>
</table></td><td></td></tr>
<tr><td>23</td><td>F</td><td>49</td><td></td><td>Adjust the data to D49 (obtained at step 22) with the PLAY and STOP buttons.</td><td></td></tr>
<tr><td>24</td><td>F</td><td>49</td><td></td><td>Press the PAUSE button.</td><td></td></tr>
</table>

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance all area tracking mode)	
2	F	16	38	Press the PAUSE button. (Releasing the color modulation stop mode)	
3	6	02	00	Releasing of color difference data display mode.	
4	6	03	10	Setting of normal mode (Weighting ON mode).	

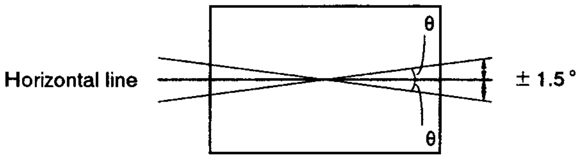
7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	± 1.5°

Adjusting method:

Order	Procedure
1	Adjust RV903 (BRIGHT) so that the CRT can be seen easily and clearly.
2	Loosen the DY (deflection yoke) tightening screw.
3	Rotate DY, and adjust the image so that it is horizontal.
4	Tighten the DY tightening screw. (Do not tighten it too tightly.)



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 7-18.

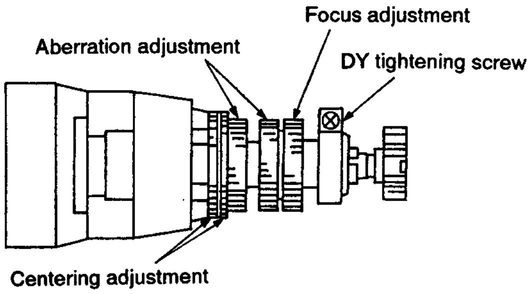


Fig. 7-19.

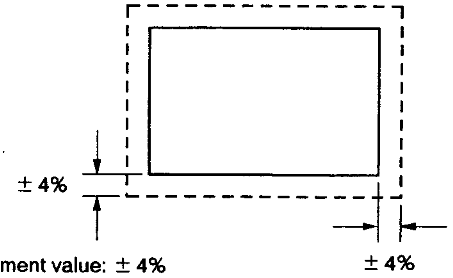
7-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	± 4%

Adjusting method:

Order	Procedure
1	Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform.

Note: As the centering position changes due to earth magnetism, rotate it 360 ° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value: ± 4%

Fig. 7-20.

7-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section

Adjusting method:

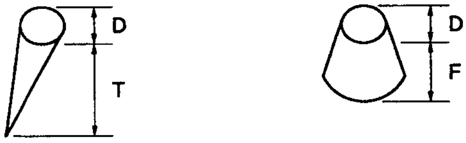
Order	Procedure
1	Adjust the focus ring to obtain the optimum focus.

7-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	T<2•D F<D

Adjusting method:

Order	Procedure
1	Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot.
2	If the centering becomes displaced here, perform the centering adjustment from the beginning again.



T<2•D

F<D

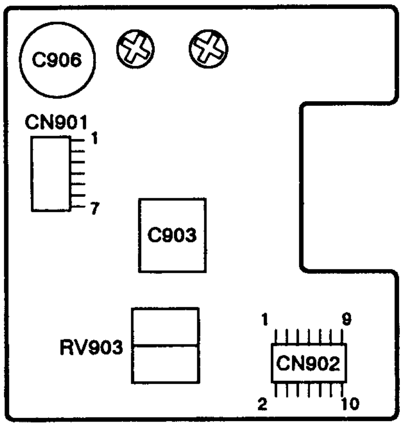
Fig. 7-21.

7-3-5. Horizontal Oscillation Frequency Adjustment (VF-55 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE)
Measurement Point	Pin ⑦ of CN901
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV901
Specified Value	2.30 ± 0.05 Vdc

Adjusting method:

Order	Procedure
1	Adjust to 2.30 ± 0.05 Vdc using RV901.



VF-55 board (component side)

Fig. 7-22.

7-3-6. Horizontal Amplitude Adjustment (VF-56 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	C952
Specified Value	6 ± 2%

Adjusting method:

Order	Procedure
1	Rotate RV902 on the VF-55 board, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2	Rotate RV903 on the VF-55 board so that the brightness is the normal level.
3	Adjust the pattern (A) of the H size adjustment capacitor (C952) to "short" or "open", so that the horizontal direction over scan becomes 6 ± 2% (Left and right totals).

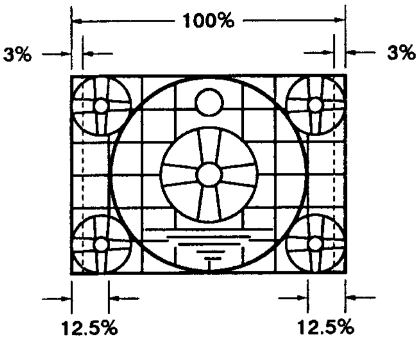
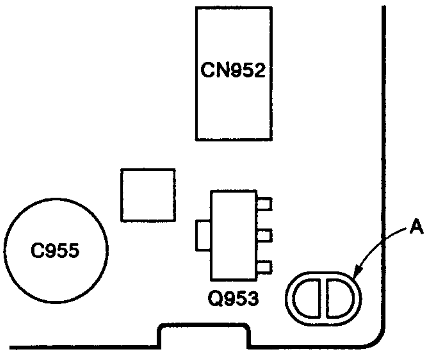


Fig. 7-23.



VF-56 board (component side)

Section A	Size H
Open	Small
Short	Big

Fig. 7-24.

7-3-7. Vertical Amplitude Adjustment (VF-55 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	RV902
Specified Value	3.5 ± 2%

Adjusting method:

Order	Procedure
1	Adjust RV902 so that the vertical direction over scan becomes 3.5 ± 2% (Top and bottom totals).

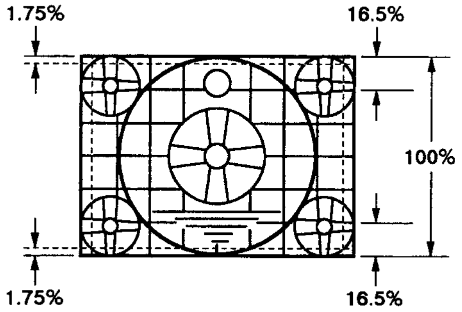


Fig. 7-25.

7-3-8. Brightness, Contrast Adjustments (VF-55, 56 boards)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	Brightness: RV903 on the VF-55 board Contrast: RV951 on the VF-56 board

Adjusting method:

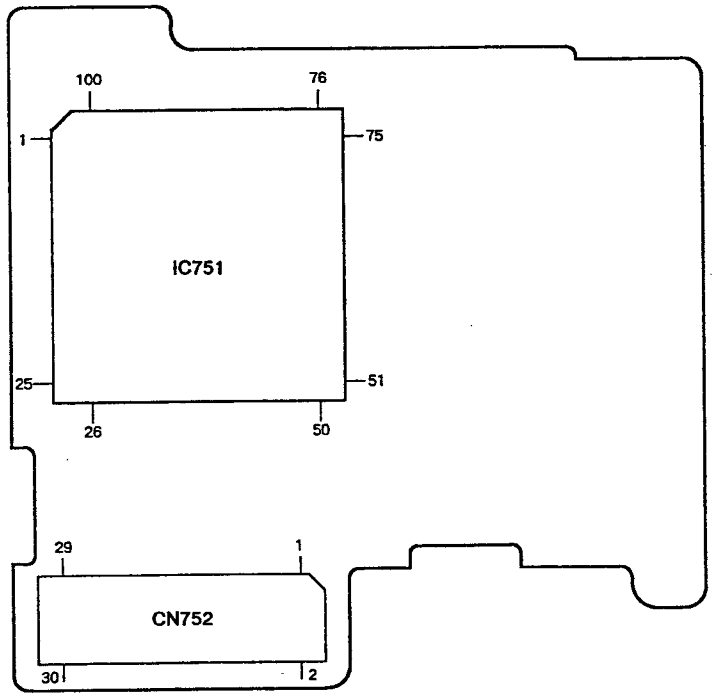
Order	Procedure
1	Rotate RV903 and RV951 alternately, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should not be so bright that the cross hatch in the monoscope circle appears vague. The dark section should not be so dark that the darkest section and the second darkest section of the gray scale cannot be differentiated.)

7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check

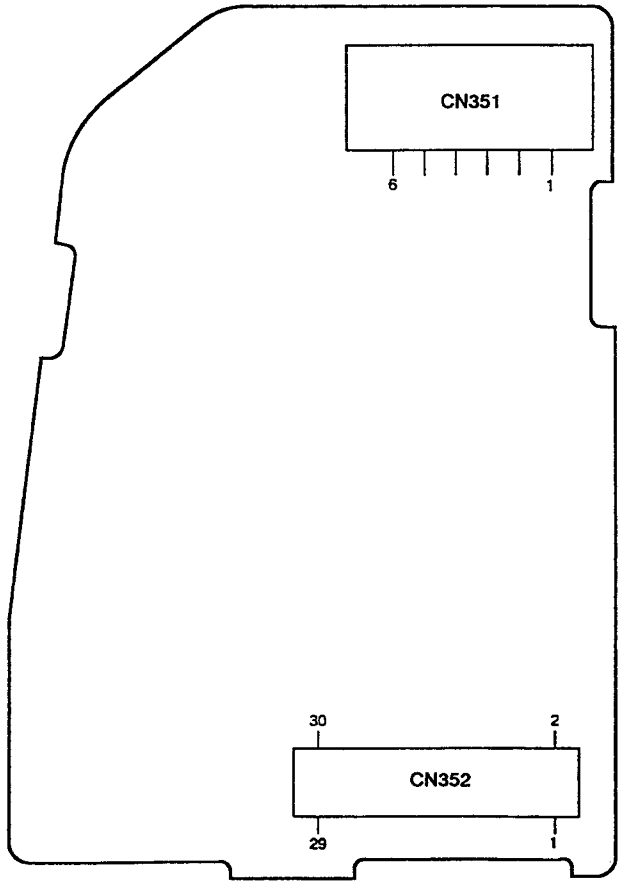
"7-3-6. Horizontal Amplitude Adjustment" and "7-3-7. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "7-3-8. Brightness, Contrast Adjustments" again. Moreover, check the focus, and if it found to be vague, perform "7-3-3. Focus Adjustment" and "7-3-4. Aberration Adjustment".

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

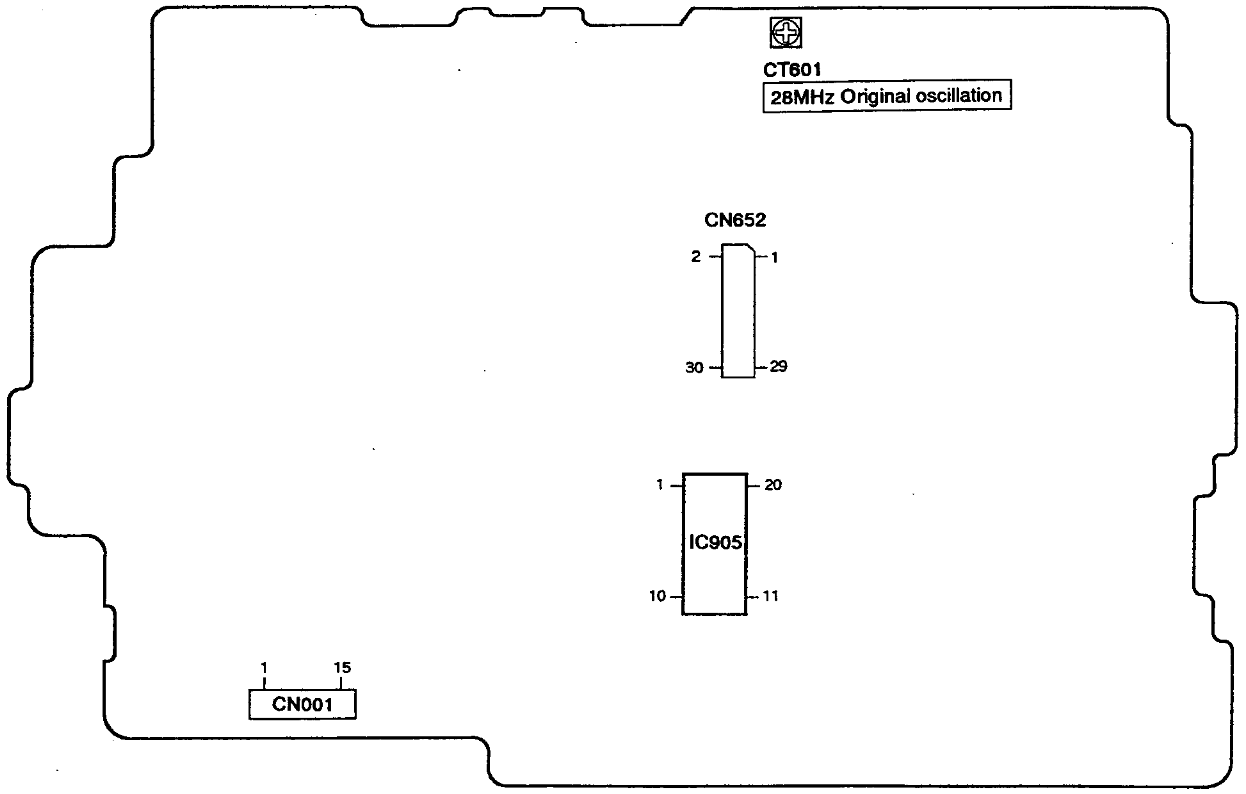
LD-63 BOARD (CONDUCTOR SIDE)


100
76
1
75
IC751
25
51
26
50
29
1
CN752
30
2

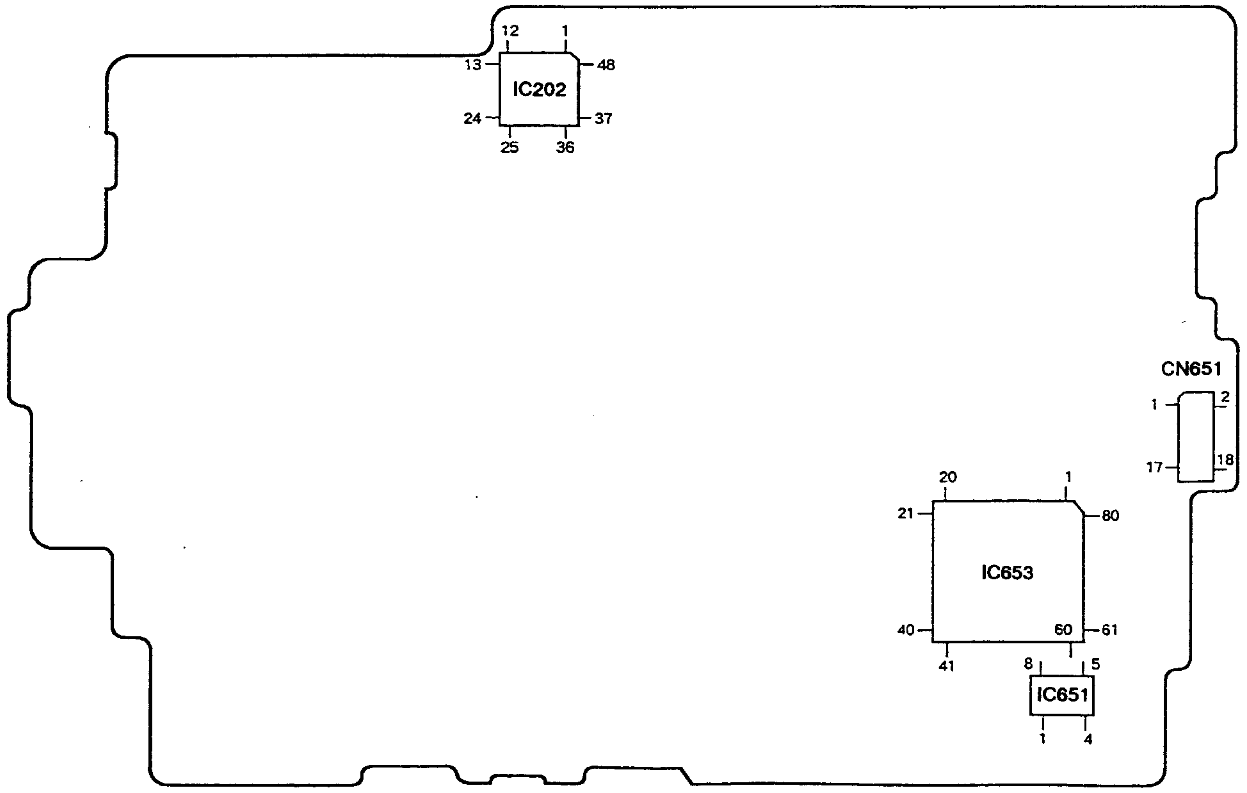
DD-54 BOARD (COMPONENT SIDE)


CN351
6
1
30
2
CN352
29
1

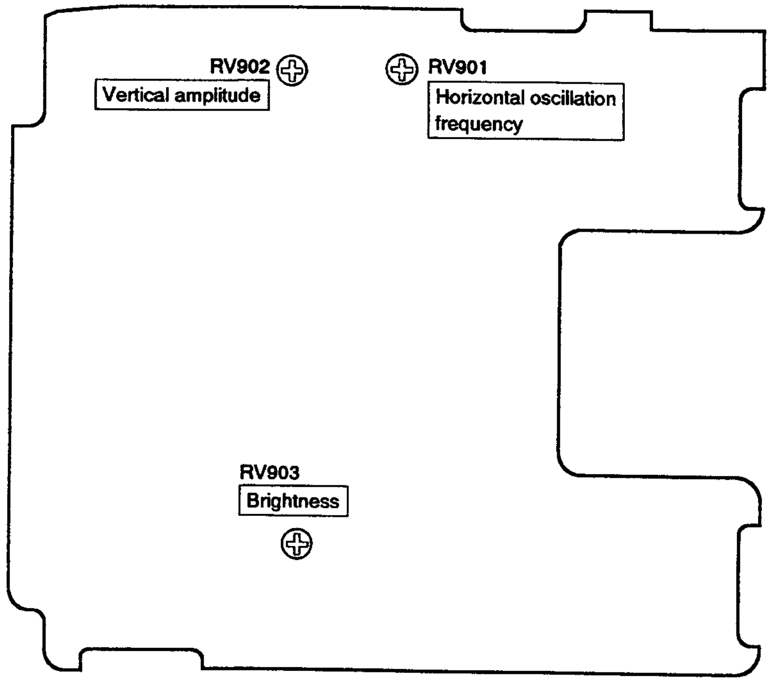
VC-129 BOARD (COMPONENT SIDE) A SIDE


CT601
28MHz Original oscillation
CN652
2
1
30
29
1
20
IC905
10
11
1
15
CN001

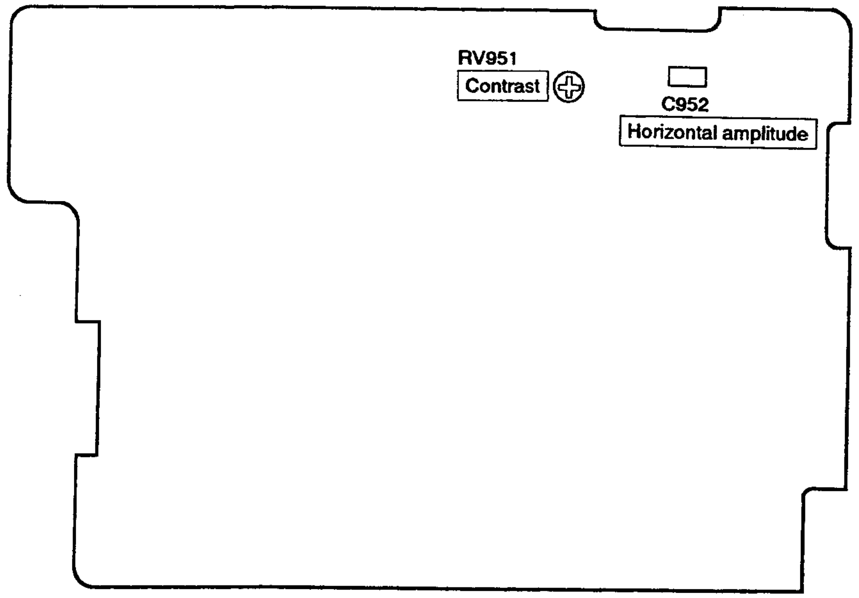
VC-129 BOARD (CONDUCTOR SIDE) B SIDE


12
1
13
48
IC202
24
37
25
36
CN651
1
2
17
18
20
1
21
80
IC653
40
60
61
41
8
5
IC651
1
4

VF-55 BOARD (COMPONENT SIDE)


RV902
Vertical amplitude
RV901
Horizontal oscillation frequency
RV903
Brightness

VF-56 BOARD (CONDUCTOR SIDE)


RV951
Contrast
C952
Horizontal amplitude

SECTION 8
MECHANISM SECTION ADJUSTMENTS

Mechanism Parts Adjustments

For details on the adjustments and checks of the mechanical section, and replacements of mechanism parts, refer to the separate volume-"8 mm Video Mechanism Section Adjustment Manual II FL Mechanism (Q Mechanism)".

8-1. OPERATING WITH THE CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED (Refer to Fig. 8-1.)

1. Loading

1) Refer to ""1. Disassembly", and turn on the power with the cabinet removed (However, leave the cabinet (R) connected so that the adjusting remote commander can be connected.). (So that the mechanism deck section can be operated.)
2) Connect the adjusting remote commander, and turn on the HOLD switch.
3) Select page: 1, address: 00, and set data: 01. (Releasing the protect)
4) Select page: D, address: 01, and set data: 01. (Setting test mode 1)
5) Press the PAUSE button of adjusting remote commander.
6) Turn off the HOLD switch of the adjusting remote commander. (The adjusting remote commander can be disconnected after this.)
7) The unit will be set into the loading mode when the lock plate release arm ❶ is pressed into the direction of the arrow.
   (To set the unit into the recording mode, fix the push switch ❷ with adhesive tape ❸ before performing this operation.)
8) After completing all operations, be sure to perform "5. Processing after operations".

2. Setting the unit into the playback condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the playback button.

3. Setting the unit into the recording condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the recording switch of the remote control unit.
   Note: Refer to "VIDEO SECTION ADJUSTMENT" to set the recording condition.

4. Ejecting

1) Press the eject button.

5. Processing after operations

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 01, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Remove the power supply from the unit.

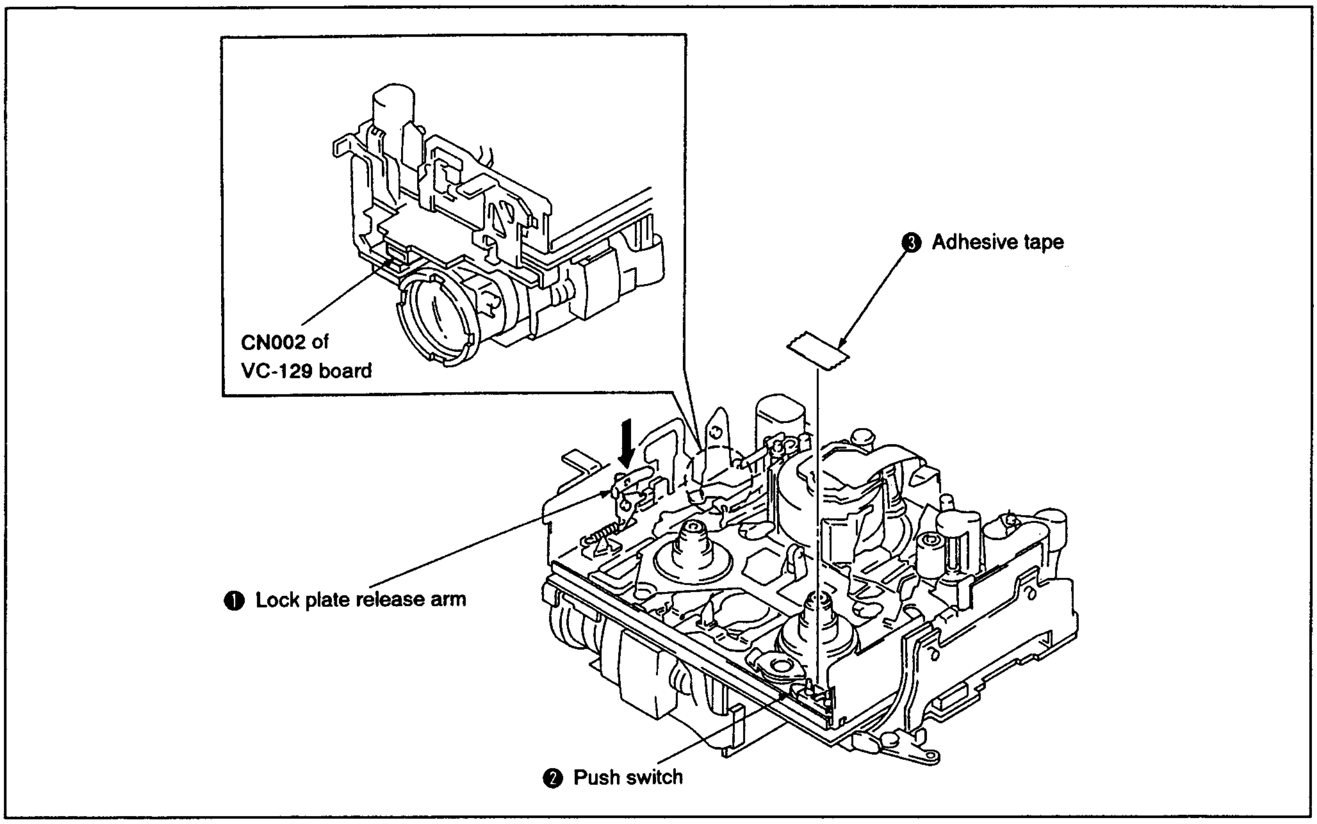

CN002 of
VC-129 board
❸ Adhesive tape
❶ Lock plate release arm
❷ Push switch

Fig. 8-1.

8-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments
1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote control terminal (JK board).
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 1, address: 00, and set data: 01.
   (Releasing of the protect)
5) Select page: D, address: 01, and set data: 03.
   (Setting of track shift mode. The adjusting remote commander can be disconnected if the PAUSE button of the remote commander is pressed. In this case, be sure to perform "8-1-5. Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
   Channel 1-Pin ⑭ of CN002 of VC-129 board
   External trigger-Pin ⑨ of CN002 of VC-129 board
   (Connect the oscilloscope via the measuring pin tool for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1CP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment II (Q Mechanism).
9) Perform "8-1-5. Processing after operations", after completing adjustments.

CN002 of VC-129 Board

1	LANC SIG
2	N.C
3	GND
4	CAP FG
5	REC 1B
6	REC 2B
7	REC 1A
8	REC 2A
9	RF SWP
10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1
12	PB RF CH2
13	RF GND
14	PB RF OUT

SECTION 9
VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 326.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipments are used for adjusting the video section.

9-1-1. Equipments Used

1) TV monitor
2) Oscilloscope 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tape
    - For adjusting tracking (WR5-1CP)
      Parts Code: 8-967-995-07
    - For adjusting normal mode video frequency characteristics (WR5-6C)
      Parts Code: 8-967-995-17
    - For adjusting Hi8 mode video frequency characteristics (WR5-7CE)
      Parts Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Parts Code: 8-967-995-47
      Or (WR5-4CSP)
      Parts Code: 8-967-995-46
      For LP (WR5-4CL)
      Parts Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Parts code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Parts code: 8-967-995-48
      For LP (WR5-8CLE)
      Parts code: 8-967-995-57
12) Adjusting remote commander (J-6082-053-A)
13) Video section measuring pin tool
    Parts code: J-6082-140-A
14) JK board extension cable (17P, 0.5 mm)
    Parts code: J-6082-194-A
15) AU-146 board extension cable (28P, 0.8 mm)
    Parts code: J-6082-190-A

9-1-2. Precautions upon Adjustment

The EVF (electronic view-finder) section is not required for adjusting the video section.
Remove the following connector when removing the EVF section.
1. CN303 of VC-129 board (Pin 7)

The MA-164 board is not required for adjusting the video section. Remove the following connector when removing the MA-164 board.
1. CN802 of AU-146 board (Pin 8)

The audio board (AU-146 board) is not required other than in the "REC AFM Level Check" of "Audio System Adjustments" and "Video System Adjustments". Remove the following connectors.
1. CN304 of VC-129 board (Pin 28)
2. CN602 of AU-146 board (Pin 8)

The lens block (including CD-101 board and LD-63 board) is not required other than in "Power Supply System Adjustments". Remove the following connectors and two mounting screws, and remove it from the VC-129 board.
1. CN601 of VC-129 board
2. CN652 of VC-129 board

9-1-3. How to Set the REC Mode

1. REC key forbidden accept mode cancel
   1. Connect the adjusting remote commander to the REMOTE terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 02, and set the data to 81. (REC key forbidden accept mode cancel)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

The REC key is accepted through the above procedure. The adjusting remote commander may be removed, hereafter.

Note: After compleating adjustment be sure to perform "4. Procedure after completed adjustment".

2. REC mode setting (1)
   (Method using adjusting remote commander)
   1. Set the HOLD switch of the adjusting remote commander to the OFF (Normal) position.
   2. Press the REC buttons set up REC mode.
3. REC mode setting (2)
   1. Connect Pin ⑧ of CN911 (ANO 0) on VC-129 board and GND with a jumper wire until the VTR is set to REC mode.
4. Procedure after completed the adjustment
   Be sure to return the mode to REC key forbideden accept mode after adjustment.
   1. Connect the adjusting remoter commander to the REMOTE terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 02, and set the data to 80. (Setting of the REC key forbidden accept mode)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

9-1-4. Connector for Adjustments (CN002 of VC-129 Board)

Some video section adjustment points are concentrated at CN002 of the VC-129 board. Connect the measuring equipment via the measuring pin tool (J-6082-140-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C
3	GND	4	CAP FG
5	REC 1B	6	REC 2B
7	REC 1A	8	REC 2A
9	RF SWP	10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1	12	PB RF CH2
13	RF GND	14	PB RF OUT

Table 9-1.

9-1-5. Connection of Equipments

Connect the measuring equipments as shown in Fig. 9-1 according to the input pin (S VIDEO or VIDEO) specified, adjust the power supply (camera/off/player) switch (S114 of CF-33 board) to "Player", and adjust.

The input pin is specified in the ( ) in the signal column. If there is no specification, although either input pin can be used, the S VIDEO input pin has priority. When adjusting with the video input pin input, pull out the connector from the S VIDEO input pin.

Note: If the VIDEO input is used for adjustments which specify that the S VIDEO input be used, the product specifications of the unit may not be satisfied in some cases. Be sure follow the specifications.
When adjustments are performed with the S VIDEO output terminal VTR as the signal source, the performance of the unit may be affected by the VTR. A pattern generator with a Y/C separation output terminal should be used, if possible.

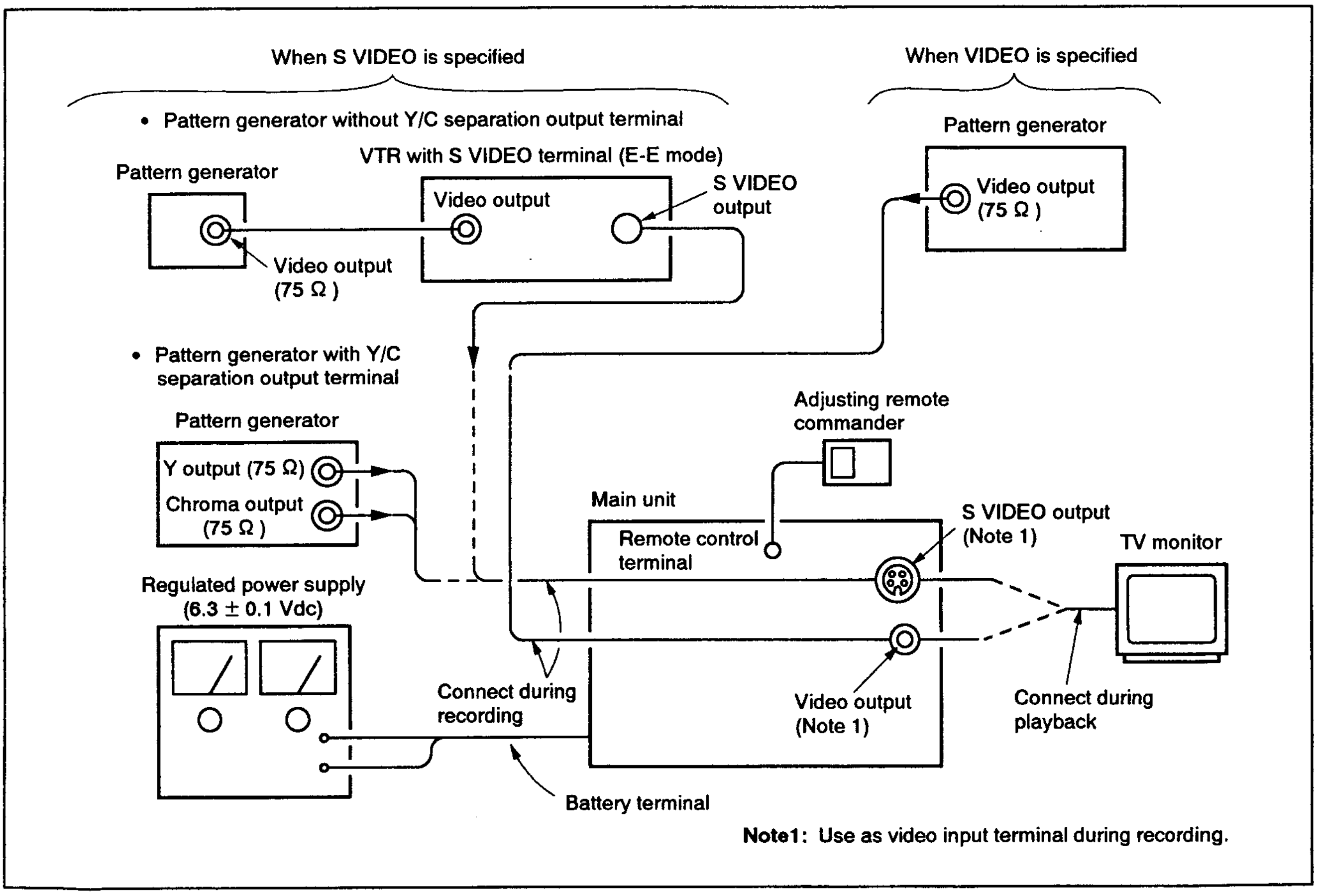

When S VIDEO is specified
• Pattern generator without Y/C separation output terminal
VTR with S VIDEO terminal (E-E mode)
Pattern generator
Video output
S VIDEO output
Video output (75 Ω)
• Pattern generator with Y/C separation output terminal
Pattern generator
Y output (75 Ω)
Chroma output (75 Ω)
Regulated power supply (6.3 ± 0.1 Vdc)
When VIDEO is specified
Pattern generator
Video output (75 Ω)
Adjusting remote commander
Main unit
Remote control terminal
S VIDEO output (Note 1)
TV monitor
Connect during recording
Video output (Note 1)
Connect during playback
Battery terminal
Note1: Use as video input terminal during recording.

Fig. 9-1.

9-1-6. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input/output terminal, and check that the sync signal of the Y signal is approximately 0.3 Vp-p and that the amplitude of the video section is approximately 0.7 Vp-p. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO IN terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.3 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used in the adjustment are shown in Fig. 9-2.

Note: Be sure to check in the recording mode.

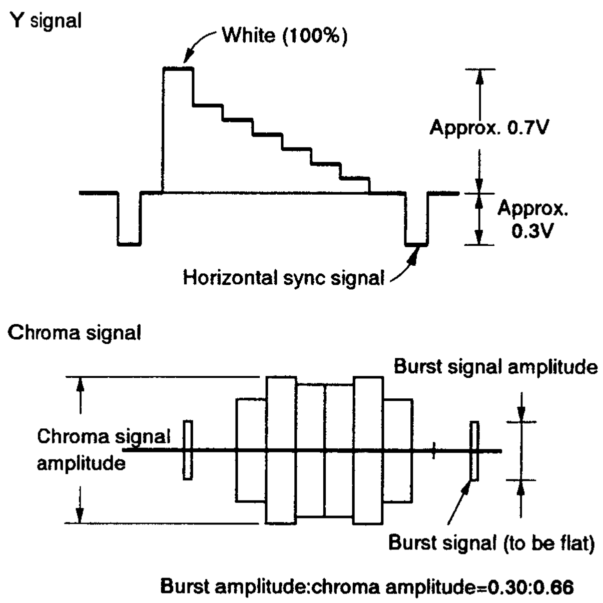

Y signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal sync signal
Chroma signal
Burst signal amplitude
Chroma signal amplitude
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-2. Color bar signal of pattern generator

2. VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30:0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 9-3.

Note: Be sure to check in the recording mode.

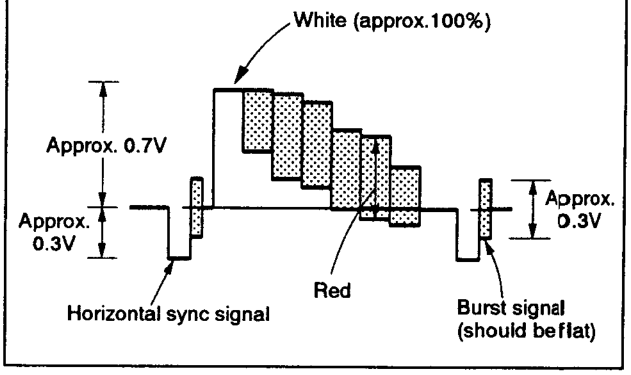

White (approx.100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 9-3. Color Bar Signal of Pattern Generator

9-1-7. Alignment Tape

The following table lists available alignment tapes.
Use the tape specified in the signal column for each adjustment.

If the tape type is not specified for adjustments using tapes to check operations, use any tape for checking operations.

Name	Memory mode	Tape type	Tape speed	Recording Contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for adjusting 1 MHz tape path		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Checking operations (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar-4 mins. Monoscope-4 mins. • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. } Repeated 4 times Color bar section 1 kHz 4 mins.	Checking operations
Checking operations WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Checking operations WR5-4CL	L	MP	LP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) 400 Hz 60% modulation		
Checking operations WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Checking operations WR5-9CS	L	MP	SP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz±60 kHz DEV L–R: 1.7 MHz±30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 mins.	AFM stereo Checking operations

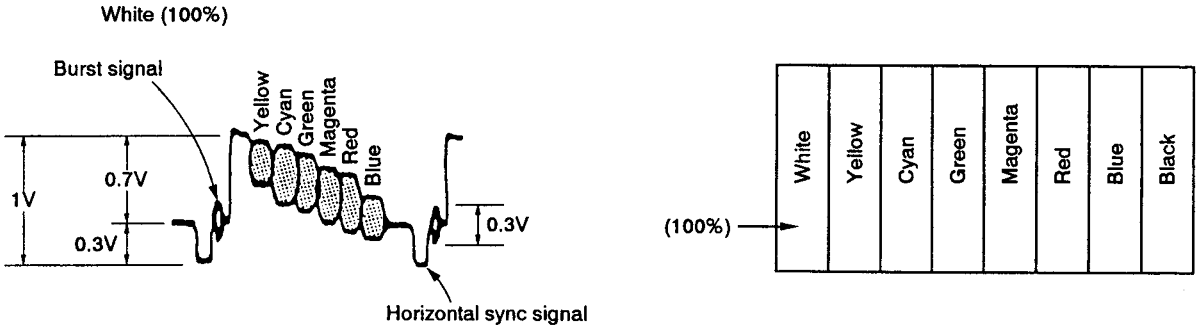
Note: Recording mode
L ··············· Normal (conventional) mode
E ··············· Hi8 (Hi-band) mode

Tape type
MP············· Metal particle tape
ME············· Metal evaporated tape

Table 9-2.

Fig. 9-4. shows 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75Ω)


White (100%)
Burst signal
Yellow
Cyan
Green
Magenta
Red
Blue
0.7V
1V
0.3V
0.3V
Horizontal sync signal
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Color bar signal waveform

Color bar pattern

Fig. 9-4. Alignment tape color bar signal

9-1-8. Output Level and Impedance

Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

9-1-9. Recording Mode (Normal/Hi8) Switching

The record mode (normal/Hi8) of this unit switches as shown in the following table. The playback mode (normal/Hi8) switches automatically according to the recording mode of the tape played back.

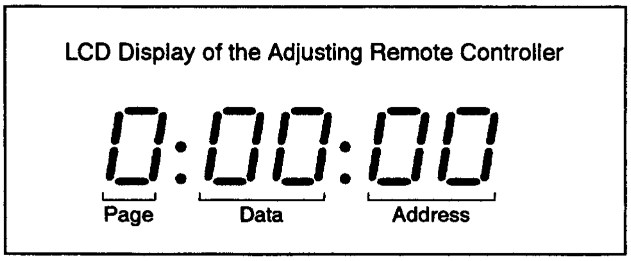
Hi8 Switch (Menu Display)	Tape Used	Recording Mode
AUTO	ME	Hi8
	Hi8 MP	
	MP	Normal
OFF	ME	Normal
	Hi8 MP	
	MP	

Table 9-3.

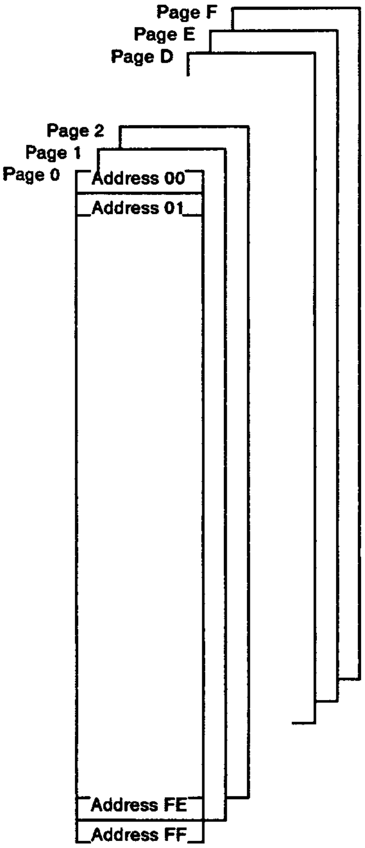
9-1-10. Service Mode

1. Setting the service mode

The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.
The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

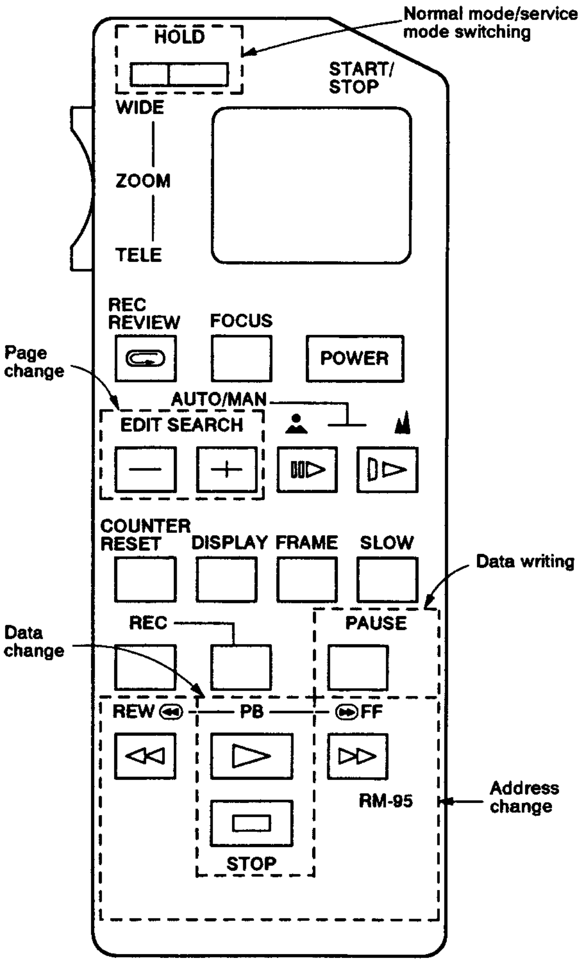

LCD Display of the Adjusting Remote Controller
0:00:00
Page
Data
Address

(1) Service LANC memory map


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page Layout
0	
1	D page write protect setting/release
2	Mode controller RAM, I/O (Note 1)
3	Mechanism controller RAM, I/O (Note 1)
4	
5	
6	Shared by camera section (Note 1)
7	Camera controller RAM, I/O (Note 1)
8	AF controller RAM, I/O (Note 1)
9	
A	2 bytes data display
B	
C	VTR EEPROM (Note 2)
D	VTR EEPROM (Note 2)
E	Camera EEPROM (Note 3)
F	Camera EEPROM (Note 3)

Adjusting remote commander RM-95 (J-6082-053-A)


Normal mode/service mode switching
HOLD
START/ STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data writing
REC
PAUSE
Data change
REW
PB
FF
RM-95
Address change
STOP

Note 1: If the data of this page is rewritten using the adjusting remote commander to set the adjustment mode or test mode, the data will not be written in the EEPROM (nonvolatile memory). Therefore, the original condition (normal condition) can be returned by removing the main power supply (6.3V) and lithium battery.

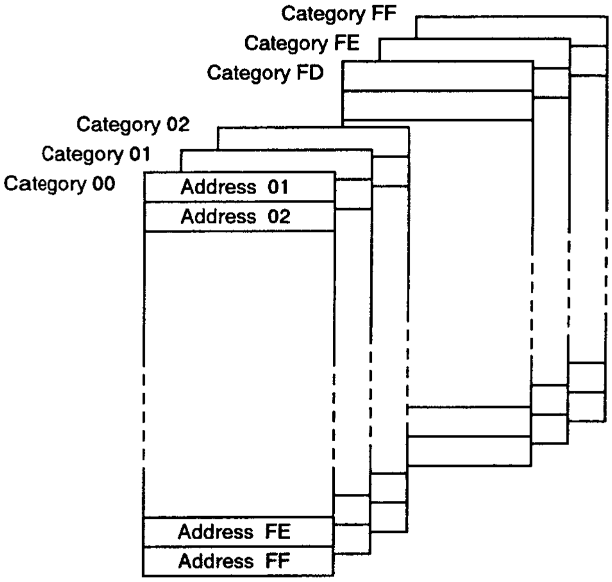
Note 2: The data of this page is written in the EEPROM (IC901 of VC-129 board).

Note 3: The data of this page is written in the EEPROM (IC651 of VC-129 board).

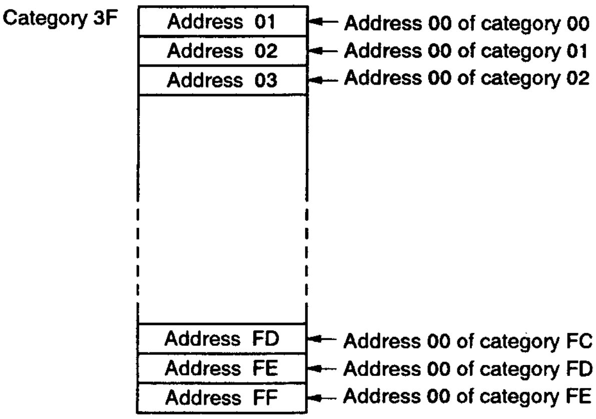
(2) Category codes

This unit uses category codes for pages 2 and 3. The 256 addresses from 00 to FF are insufficient for the mode controller and mechanism controller to access the RAM. Therefore, new category codes have been used to seemingly increase addresses (Addresses 0000 to FFFF).

However, the data of address 00 are actually used as page numbers to form the 256 pages from 00 to FF, as shown in the following figure. This address 00 data are called category codes to discriminate them from the real page numbers. The new pages are called categories.


Category FF
Category FE
Category FD
Category 02
Category 01
Category 00
Address 01
Address 02
Address FE
Address FF

(Supplement) As each category no longer has address 00 as it is, this address cannot be accessed using the adjusting remote commander. Therefore, category 3F is used for accessing address 00.


Category 3F
Address 01
Address 02
Address 03
Address FD
Address FE
Address FF
Address 00 of category 00
Address 00 of category 01
Address 00 of category 02
Address 00 of category FC
Address 00 of category FD
Address 00 of category FE

(Example)

Specification of	Page 2	Category 01	Address 15

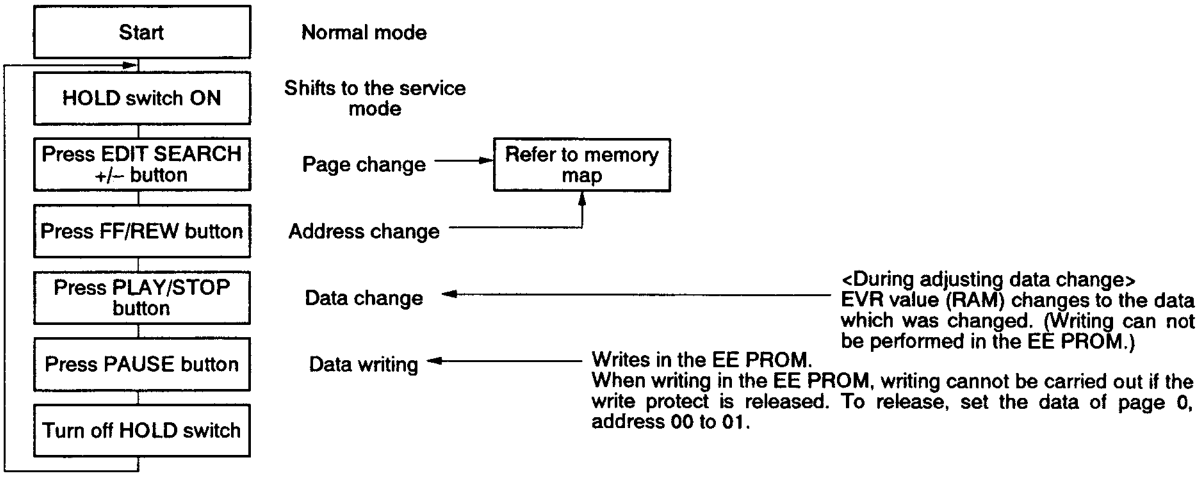
Page 2 is the mode controller

Page 3 is the mechanism controller

The actual category and address are specified by the adjusting remote commander as follows.

Order	Page	Address	Data	Procedure
1	2	00	01	Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.
2	2	15		As the data of page 2, address 00 is 01, select page 2, address 15 to select page 2, category 01, address 15. (The data of this address is the battery voltage A/D conversion value of the mode controller input.)

[Shifting to the service mode using the adjusting remote commander]


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/– button
Page change
Refer to memory map
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

<During adjusting data change>
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of page 0, address 00 to 01.

Command Name	Command Function	Normal LANC Command
Page Up	Page+1	Edit Search+
Page Down	Page–1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address–1	Rewind
Data Up	Data+1	Play Back
Data Down	Data–1	Stop
Store	Writes data in the EEPROM, RAM	Pause

2. Page D write protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Release the write protect

3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

Page D	Address 01

Data	Function
00	Normal
01	Test mode 1 Various emergency prohibitions and releases Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition Power off prohibition/release by battery end
02	Test mode 2 Not used
03	Test mode 3 Track shift Performs the track shift playback Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching
04	Test mode 4 Rear lock mode Performs rear lock playback SP/LP automatic discrimination prohibition, manual switching
05	Test mode 5 SP/LP automatic discrimination prohibition, manual switching

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (6.3 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

4. Emergency code

Fault (error) symptoms can be checked.

Page D	Address 06

First emergency code
……First error code generated

Page D	Address 07

Last emergency code
……Last error code generated (This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

Code	Error Condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Reel errors at other times
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during normal drum conditions
08	PG error during normal drum conditions
09	Phase error during normal drum conditions

5. Emergency mode

The operation mode can be checked during faults.

Page D	Address 08

First emergency mode
……The operation mode when the first error is generated

Page D	Address 09

Last emergency mode
……The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 08 and 09 to 00 after repairs/adjustments.

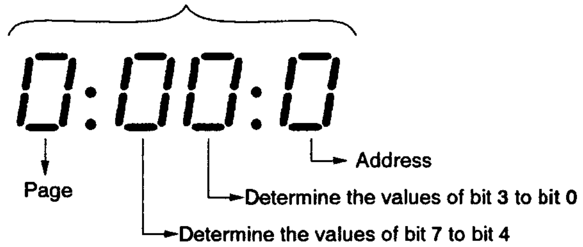
※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

Code	Error Conditions
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW (+)
95	REC REVIEW (–)
A2	EMERGENCY LOADING
A5	EDIT SEARCH (+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH (–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".

Adjusting remote commander display


0:00:0
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote controller display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ→	E(E)	1	1	1	0
	F(F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

7. Mode controller input check

Page 2	Category 00	Address 02

Bit	Input Signal	Input Signal Level
0	BATT IN (IC903⑮)	"1"=H, "0"=L
1	PB V (IC903⑯)	"1"=PB V input present, "0"=No PB V input
2		
3	LANC PWR ON (IC903⑱)	"1"=H, "0"=L
4	LI PREEND (IC903⑲)	"1"=H, "0"=L
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	02		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

Page 2	Category 00	Address 1C

Bit	Input Signal	Input Signal Level
0	BATT SENCE (IC903(91))	"1"=L "0"=H
1	$\overline{\text{EXT BATT}}$ (IC903(92))	
2	BRIGHT A (IC903(93))	"1"=H "0"=L
3	BRIGHT B (IC903(94))	
4		
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	1C		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

8. White balance mode switching

Page 2	Category 00	Address 21

Data	White balance mode
01	Indoor
02	Outdoor
03	Hold
06	Auto

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	AE	40	Prohibition of camera function renewal
3	2	00	01	Specification of category 1
4	2	21		Specify the white balance mode by setting data 01 to 06.

9. Zoom position check

Page 2	Category 00	Address 2B, 2C

Address	Data
2B	Zoom position data (lower)
2C	Zoom position data (upper)

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 01
2	2	2B		Data (00 to FF) indicates lower data of zoom position
3	2	2C		Data (00 to 02) indicates upper data of zoom position. WIDE end: 00 TELE end: 02

10. LCD, LED check

Page 2	Category 00	Address AE

Data	
00	Normal
10	All segments of LCD light up Tally LED lights up

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	AE	10	All segments of LCD and tally LED light up.

11. Key input check

Page 2	Category 3F	Address 01

Bit	Key Switch	Condition of Switch
0	Date (+) (CF-33 S115)	"1"=OFF "0"=ON
1	Time (CF-33 S119)	
2	Cassette eject (CF-33 S111)	
3	Video power supply (CF-33 S114)	
4	Auto lock (CF-33 S108)	
5	Start/Stop (CF-33 S112)	
6	CC DOWN (Mechanism section)	
7	Camera power supply (CF-33 S114)	

Using method:

Order	Page	Address	Data	Procedure
1	2	00	3F	Specification of category 3F
2	2	01		The on/off of each key switch can be discriminated by differentiating the bit values of the display data.

12. Key input check (A/D Port)

Page 2	Category 01	Address 16 to 19

Display Data Address	00 to 10	11 to 4C	4D to 7E	7F to B1	B2 to E7	E8 to FF
16 (AD0: IC903 (82))	(Record)	Stop (FK-33 S205)	Forward (FK-33 S204)	Playback (FK-33 S203)	Edit search (–) (FD-33 S202)	No key input
17 (AD1: IC903 (83))	Pause (FK-33 S211)	Rewind (FK-33 S210)	Menu (FK-33 S209)	Item (FK-33 S208)	Edit search (+) (FK-33 S207)	No key input
18 (AD2: IC903 (84))	Setting (FK-33 S216)		Counter reset (CF-33 S105)			No key input
19 (AD3: IC903 (85))	Program AE (CF-33 S103)	Exposure lock (CF-33 S102)	Focus (CF-33 S101)			No key input

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 00
2	2	16 to 19		The key pressed can be discriminated by the display data of each address.

13. Wireless remote commander reception contents check

Page 2	Category 01	Address 11

Display Data	Pressed Key of Wireless Remote Commander
FF	Non
9A	TELE
9B	WIDE
99	Start/Stop
1B	REW
1C	FWD
18	Stop
1A	Playback
19	Pause
5A	Data screen
1D	(Record)
23	Slow

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	11		The pressed key of the wireless remote commander can be discriminated by the display data.

14. Battery voltage check

Page 2	Category 01	Address 15

Display Data	Battery Voltage
FF	Approx. 10 Vdc
F0	Approx. 9.4 Vdc
E0	Approx. 8.8 Vdc
D0	Approx. 8.2 Vdc
C0	Approx. 7.5 Vdc
B0	Approx. 6.9 Vdc
A0	Approx. 6.3 Vdc
90	Approx. 5.6 Vdc
80	Approx. 5.0 Vdc

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	15		The battery voltage can be discriminated by the display data.

※ Voltage measurement accuracy is approx. ± 10%.

15. Mechanism section switch, etc. check

Page 2	Category 00	Address 86

<table>
<tr><th>Bit</th><th>Switch, etc.</th><th>Condition</th></tr>
<tr><td>0</td><td>Hi8 MP</td><td>"1"=Hi8 MP tape, "0"=Others</td></tr>
<tr><td>1</td><td>PB E/L</td><td>"1"=Hi8 mode playback, "0"=Others</td></tr>
<tr><td>2</td><td>ME/MP</td><td>"1"=ME tape, "0"=MP tape</td></tr>
<tr><td>3</td><td>REC PROOF</td><td>"1"=Recording prohibited, "0"=Recording possible</td></tr>
<tr><td>4</td><td></td><td></td></tr>
<tr><td>5</td><td>MODE SW 0</td><td rowspan="3">
<table>
<tr><th>Display Data</th><th>Mode Switch Position</th></tr>
<tr><td>8*</td><td>EJECT</td></tr>
<tr><td>6*</td><td>USE</td></tr>
<tr><td>C*</td><td>LS</td></tr>
<tr><td>4*</td><td>GL</td></tr>
<tr><td>A*</td><td>RP(REC, PB, FF, REW, CUE, REVIEW, PAUSE)</td></tr>
<tr><td>2*</td><td>READY(STOP)</td></tr>
</table>
*: 0 to F</td></tr>
<tr><td>6</td><td>MODE SW 1</td></tr>
<tr><td>7</td><td>MODE SW 2</td></tr>
</table>

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	86		The mode switch position can be discriminated by the upper 1 digit of the display data. The conditions of various switches can be discriminated by the bit value of the lower 1 digit.

16. Mechanism controller input/output check

Page 2	Category 00	Address 85

Bit	I/O Signal	Condition
0	PB LP/SP DET	"1"=LP playback, "0"=Others
1	SYNC DET	"1"=VTR SYNC present, "0"=No VTR SYNC
2	REC CLOG	"1"=Clog occurred, "0"=Others
3		
4	JOG	"1"=Variable speed playback, "0"=Others
5	VA PB MODE	"1"=PB mode, "0"=E-E mode
6	AUDIO MUTE	"1"=Mute, "0"=Audio output
7	VIDEO MUTE	"1"=Mute, "0"=Video output

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	85		The condition of each input/output signal can be discriminated by differentiating the bit value of the display data.

17. Mechanism controller input check

Page 2	Category 00	Address 89

Bit	I/O Signal	Condition
0	$\overline{\text{S IN}}$	"0"=S VIDEO terminal connection condition, "1"=S VIDEO terminal open condition
1	$\overline{\text{DEW DET}}$	"0"=Condensation occurred, "1"=Others
2		
3		
4	$\overline{\text{MIC MONO}}$	"0"=During monaural external microphone use, "1"=Others
5	$\overline{\text{JACK MONO}}$	"0"=Audio input/output terminal (right) connection condition, "1"=Audio input/output terminal (right) open condition
6	PB 1.7M DET	"1"=During AFM stereo/bilingual tape playback, "0"=Others
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	89		The condition of each input signal can be discriminated by differentiating the bit values of the display data.

18. Mechanism controller A/D port input voltage check

Page 3	Category 02	Address 14

Display Data	A/D Port Input Voltage
00 to FF	Approx. 0 Vdc to approx. 5 Vdc

Using method:

<table>
<tr><th>Order</th><th>Page</th><th>Address</th><th>Data</th><th>Procedure</th></tr>
<tr><td>1</td><td>3</td><td>00</td><td>02</td><td>Specification of category 02</td></tr>
<tr><td>2</td><td>3</td><td>0E</td><td>02</td><td>Permission for A/D conversion operations</td></tr>
<tr><td>3</td><td>3</td><td>13</td><td></td><td>Set the data according to the following table, and specify the A/D port of the mechanism controller.
<table>
<tr><th>Data</th><th>Mechanism Controller Port</th></tr>
<tr><td>00</td><td>(60) pin; AN0, T REEL FG</td></tr>
<tr><td>01</td><td>(59) pin; AN1, S REEL FG</td></tr>
<tr><td>02</td><td>(58) pin; AN2, ATF ERROR</td></tr>
<tr><td>03</td><td>Not used</td></tr>
<tr><td>04</td><td>(56) pin; AN4, $\overline{\text{DEW DET}}$</td></tr>
<tr><td>05</td><td>(55) pin; AN5, TAPE TOP</td></tr>
<tr><td>06</td><td>(54) pin; AN6, TAPE END</td></tr>
</table></td></tr>
<tr><td>4</td><td>3</td><td>14</td><td></td><td>The A/D port input voltage can be discriminated according to the display data.</td></tr>
</table>

19. Tape top/end sensor check

Page 3	Category 02	Address 0A

Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape top
10	Tape end
11	No tape

Tape end sensor condition
Tape top sensor condition

"0"=Non active (Not receiving light)
"1"=Active (Receiving light)

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	10	Request for tape top/end sampling operations
3	3	0A		The condition of the tape top/end sensor can be discriminated by the display data.

20. Individual operations of the drum, capstan, and loading motor

Page 3	Category 02	Address 11

Display	Operations
00	Normal
02	Drum in normal rotation
04	Drum in reverse rotation
06	Capstan in normal rotation
08	Capstan in reverse rotation
0A	Loading motor in normal rotation
0C	Loading motor in reverse rotation
01	All motors stop
03	
05	
07	
09	
0B	
0D	
0F	

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	01	Permission for individual operations of motor
3	3	11		The motor can be operated individually by setting the data indicated above.
4				Turn off the main power supply (6.3 Vdc).

21. Page D address list

Note 1: The adjustment data initial value is the data input before performing video section adjustments (Page D) if the Page D data has been erased due to some reason.

Note 2: The data written in the adjustment data memo column are fixed.
After adjusting, check that these data have not been rewritten by mistake.

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
00		Not used	FF	FF
01	Test mode	Test mode	00	00
02	Destination flag	Destination flag	80	80
03	BATT END	Battery end adjustment	00	
04	SW POSITION (LOW)	SW POSITION adjustment [Lower]	00	
05	SW POSITION (HIGH)	SW POSITION adjustment [Lower]	80	
06	EMERGENCY code (FIRST)	Error codes and modes are recorded in the memory. Rewrite the data of these addresses to 00 after repairs/adjustments.	00	00
07	EMERGENCY code (LAST)		00	00
08	EMERGENCY mode (FIRST)		00	00
09	EMERGENCY mode (LAST)		00	00
0A	SR DATA (MP NORMAL SP)	CXA1207 serial data	67	67
0B	SR DATA (MP NORMAL LP)	CXA1207 serial data	5F	5F
0C	SR DATA (ME HI8 SP)	CXA1207 serial data	69	69
0D	SR DATA (ME HI8 LP)	CXA1207 serial data	6F	6F
0E	SR DATA (ME NORMAL SP)	CXA1207 serial data	68	68
0F	SR DATA (ME NORMAL LP)	CXA1207 serial data	5C	5C
10	SR DATA (MP HI8 SP)	CXA1207 serial data	63	63
11	SR DATA (MP HI8 LP)	CXA1207 serial data	5F	5F
12	SR DATA (EDIT ON NORMAL)	CXA1207 serial data	5C	5C
13	SR DATA (EDIT ON HI8)	CXA1207 serial data	65	65
14		Not used	FF	FF
15		Not used	FF	FF
16		Not used	FF	FF
17		Not used	FF	FF
18		Not used	FF	FF
19		Not used	FF	FF
1A		Not used	FF	FF
1B		Not used	FF	FF
1C		Not used	FF	FF
1D		Not used	FF	FF
1E		Not used	FF	FF
1F		Not used	FF	FF
20		DDS display start year, EJECT permission, etc.	02	02
21		CAM P ON, VTR P ON, etc.	00	00
22 to 2A		Not used	FF	FF
2B	BATT END	Battery end voltage correction value when using external battery.	0E	0E
2C	HUNTING THRESHOLD	Hunting prevention threshold level	9A	9A
2D	BATT REMAIN	2/4→1/4 threshold voltage Battery remained amount display	A0	A0
2E	BATT REMAIN	3/4→2/4 threshold voltage	AA	AA
2F	BATT REMAIN	4/4→3/4 threshold voltage	B0	B0

Table 9-4 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
30	REC C 1A (ME)	ME 1Ach REC C level adjustment (⑫ of IC303)		
31	REC C 1A (MP)	MP 1Ach REC C level adjustment (⑫ of IC303)		
32	REC C 1B (ME)	ME 1Bch REC C level adjustment (⑬ of IC303)		
33	REC C 1B (MP)	MP 1Bch REC C level adjustment (⑬ of IC303)		
34	REC C 2A (ME)	ME 2Ach REC C level adjustment (⑭ of IC303)		
35	REC C 2A (MP)	MP 2Ach REC C level adjustment (⑭ of IC303)		
36	REC C 2B (ME)	ME 2Bch REC C level adjustment (⑮ of IC303)		
37	REC C 2B (MP)	MP 2Bch REC C level adjustment (⑮ of IC303)		
38	CAP FG OFFSET	Capstan FG bias adjustment (⑰ of IC303)	80	
39		Not used	FF	FF
3A		Not used	FF	FF
3B		Not used	FF	FF
3C	MT F0 (E)	Hi8 playback RF equalizer f0 frequency adjustment (㉒ of IC303)		
3D	MT F0 (L)	Normal playback RF equalizer f0 frequency adjustment (㉒ of IC303)		
3E	MT 2A (E)	Hi8 2Ach frequency characteristics adjustment (⑳ of IC303)	80	
3F	MT 2A (L)	Normal 2Ach frequency characteristics adjustment (⑳ of IC303)	80	
40	MT 2B (E)	Hi8 2Bch frequency characteristics adjustment (㉑ of IC303)	80	
41	MT 2B (L)	Normal 2Bch frequency characteristics adjustment (㉑ of IC303)	80	
42	MT 1A (E)	Hi8 1Ach frequency characteristics adjustment (⑱ of IC303)	80	
43	MT 1A (L)	Normal 1Ach frequency characteristics adjustment (⑱ of IC303)	80	
44	MT 1B (E)	Hi8 1Bch frequency characteristics adjustment (⑲ of IC303)	80	
45	MT 1B (L)	Normal 1Bch frequency characteristics adjustment (⑲ of IC303)	80	
46		Not used	FF	FF
47		Not used	FF	FF
48	RF CONT (ME)	ME RF CONT (⑪ of IC303)	58	58
49	RF CONT (MP)	MP RF CONT (⑪ of IC303)	58	58
4A	SYNC AGC	SYNC AGC adjustment (㊳ of IC303)		
4B		Not used	FF	FF
4C	C COMB	Chroma comb type filter adjustment (㊴ of IC303)		
4D	SR IR	IR adjustment (㊷ of IC303)		
4E	CAR.-E	Hi8 Y-FM carrier frequency adjustment (㊸ of IC303)		
4F	CAR.-L	Normal Y-FM carrier frequency adjustment (㊸ of IC303)		
50	DEV.-E	Hi8 Y-FM deviation adjustment (㊹ of IC303)		
51	DEV.-L	Normal Y-FM deviation adjustment (㊹ of IC303)		
52	REC Y (ME E)	Hi8 ME REC Y level adjustment (⑯ of IC303)		
53	REC Y (MP E)	Hi8 MP REC Y level adjustment (⑯ of IC303)		
54	REC Y (ME L)	Normal ME REC Y level adjustment (⑯ of IC303)		
55	REC Y (MP L)	Normal MP REC Y level adjustment (⑯ of IC303)		
56		Not used	FF	FF
57	PB Y (EE)	EE mode REC Y level (㊼ of IC303)	00	00
58	PB Y (E)	Hi8 PB Y level adjustment (㊼ of IC303)		
59	PB Y (L)	Normal PB Y level adjustment (㊼ of IC303)		
5A	EMPH (EE)	EE emphasis input level adjustment (㊽ of IC303)		
5B	EMPH (PB)	PB emphasis input level adjustment (㊽ of IC303)		

Table 9-4 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
5C		Not used	FF	FF
5D		Not used	FF	FF
5E		Not used	FF	FF
5F		Not used	FF	FF
60		Not used	FF	FF
61		Not used	FF	FF
62		Not used	FF	FF
63		Not used	FF	FF
64		Not used	FF	FF
65		Not used	FF	FF
66	YD ADJ	YD level (㊵ of IC303)	B1	B1
67	PAL JOG	Delay burst phase adjustment (㊶ of IC303)		
68	D.CLIP (ME E SP)	Hi8 ME SP DARK CLIP (㊺ of IC303)	65	65
69	D.CLIP (MP E SP)	Hi8 MP SP DARK CLIP (㊺ of IC303)	65	65
6A	D.CLIP (ME L SP)	Normal ME SP DARK CLIP (㊺ of IC303)	53	53
6B	D.CLIP (MP L SP)	Normal MP SP DARK CLIP (㊺ of IC303)	53	53
6C	D.CLIP (ME E LP)	Hi8 ME LP DARK CLIP (㊺ of IC303)	66	66
6D	D.CLIP (MP E LP)	Hi8 MP LP DARK CLIP (㊺ of IC303)	4D	4D
6E	D.CLIP (ME L LP)	Normal ME LP DARK CLIP (㊺ of IC303)	B1	B1
6F	D.CLIP (MP L LP)	Normal MP LP DARK CLIP (㊺ of IC303)	B1	B1
70	W.CLIP (ME E SP)	Hi8 ME SP WHITE CLIP (㊻ of IC303)	7C	7C
71	W.CLIP (MP E SP)	Hi8 MP SP WHITE CLIP (㊻ of IC303)	AE	AE
72	W.CLIP (ME L SP)	Normal ME SP WHITE CLIP (㊻ of IC303)	53	53
73	W.CLIP (MP L SP)	Normal MP SP WHITE CLIP (㊻ of IC303)	53	53
74	W.CLIP (ME E LP)	Hi8 ME LP WHITE CLIP (㊻ of IC303)	4D	4D
75	W.CLIP (MP E LP)	Hi8 MP LP WHITE CLIP (㊻ of IC303)	20	20
76	W.CLIP (ME L LP)	Normal ME LP WHITE CLIP (㊻ of IC303)	B1	B1
77	W.CLIP (MP L LP)	Normal MP LP WHITE CLIP (㊻ of IC303)	B1	B1
78	REC/PB MX (REC)	REC matrix adjustment (㉘ of IC303)		
79	REC/PB MX (PB)	PB matrix adjustment (㉘ of IC303)		
7A	1.5 IR	1.5 MHz IR adjustment (㉖ of IC303)		
7B	1.5 DEV	1.5 MHz deviation adjustment (㉗ of IC303)		
7C	1.7 IR	1.7 MHz IR adjustment (㉔ of IC303)		
7D	1.7 DEV	1.7 MHz deviation adjustment (㉕ of IC303)		
7E to 83		Not used	FF	FF
84	ME CONT (ME E)	Hi8 ME REC C level (㉓ of IC303)	FF	FF
85	ME CONT (MP E)	Hi8 MP REC C level (㉓ of IC303)		
86	ME CONT (ME L)	Normal ME REC C level (㉓ of IC303)	FF	FF
87	ME CONT (MP L)	Normal MP REC C level (㉓ of IC303)		
88		Not used	FF	FF
89	ME CONT (MP E LP)	Hi8 MP LP REC C level (㉓ of IC303)		
8A			FF	FF
8B	ME CONT (MP L LP)	Normal MP LP REC C level (㉓ of IC303)		
8C	REC C RV (REC)	REC C RF level adjustment (⑩ of IC303)		
8D	REC C RV (PB)	PB mode REC C RF level adjustment (⑩ of IC303)	00	00

Table 9-4 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
8E		Not used	FF	FF
8F		Special use	00	00
90 to DF		Not used	FF	FF
E0	NEXT DEF BIT	CCD imager correction pattern (for backup)		
E1	CCD DEFECT 0	CCD imager correction data (for backup) ※ Refer to "CCD Imager Correction Data Writing" of Camera Section Adjustments.		
E2	CCD DEFECT 1			
E3	CCD DEFECT 2			
E4	CCD DEFECT 3			
E5	CCD DEFECT 4			
E6	CCD DEFECT 5			
E7	CCD DEFECT 6			
E8	CCD DEFECT 7			
E9	CCD DEFECT 8			
EA	CCD DEFECT 9			
EB	CCD DEFECT 10			
EC	CCD DEFECT 11			
ED	CCD DEFECT 12			
EE	CCD DEFECT 13			
EF	CCD DEFECT 14			
F0 to FF		Establishment area		

Table 9-4 (4).

9-2. ADJUSTING POINTS WHEN REPLACING MAIN PARTS

1. When replacing drum

"Switching Position Adjustment" of "Servo System Adjustments"
"Playback Frequency Characteristics Adjustment" of "Video System Adjustments"

2. When replacing capstan motor

"CAP FG Duty Adjustment" of "Servo System Adjustments"

9-3. POWER SUPPLY SYSTEM ADJUSTMENTS

1. Oscillator frequency check (DD-54 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q355 collector
Measuring Instrument	Frequency counter
Specified Value	460 ± 30 kHz

2. Power supply voltage check (DD-54 board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVF 5V check	
Measurement Point	Pin ⑮ of CN352
Specified Value	4.92 ± 0.15 Vdc
SS5V check	
Measurement Point	Pin ⑬ of CN352
Specified Value	4.71 ± 0.15 Vdc
D5V check	
Measurement Point	Pins ⑤ and ⑥ of CN352
Specified Value	4.90+0.15 Vdc
D4V check	
Measurement Point	Pin ③ of CN352
Specified Value	3.95 ± 0.15 Vdc
VIDEO 5V check	
Measurement Point	Pins ⑪ and ⑫ of CN352
Specified Value	4.69 ± 0.15 Vdc
AU5V check	
Measurement Point	Pin ⑭ of CN352
Specified Value	4.72 ± 0.15 Vdc
CAM 5V check	
Measurement Point	Pin ① of CN352
Specified Value	4.85 ± 0.15 Vdc
15V check	
Measurement Point	Pin ④ of CN352
Specified Value	15.00 ± 0.4 Vdc
–8.5V check	
Measurement Point	Pin ② of CN352
Specified Value	–8.5 ± 0.5 Vdc

9-4. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D initial value input

If the page D data is erased due to some cause, input the page D initial value before adjusting. For details on the initial value, refer to "Page D Address List" in "9-1-9. Service Mode". Input the CCD correction data (Page F, addresses 1F to 2E) to addresses E0 to EF as backup data. For details, refer to "CCD correction data writing" of "Camera Section Adjustments".

Mode	Stop
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to AF, E0 to EF

Inputting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	00~AF		Input the data (initial value) according to the "Page D Address List". After setting each data, be sure to press the PAUSE button.	
3	D	E0 E1 E2 ⋮ EF		Set the data of page F address 1F, and press the PAUSE button. Set the data of page F address 20, and press the PAUSE button. Set the data of page F address 21, and press the PAUSE button. ⋮ Set the data of page F address 2E, and press the PAUSE button.	

2. Battery end adjustment

Mode	Camera record, auto focus off
Subject	Arbitrary
Measurement Point	LCD display of the adjusting remote commander
Measuring Instrument	
Adjustment Page	D
Adjustment Address	03 (BATT END)

Connection:

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-5.

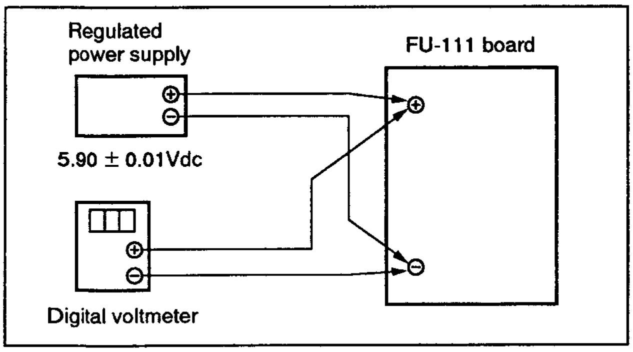


Fig. 9-5.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.	
2				Set the camera recording mode. The auto focus turns off.	
3	**1**	**00**	**01**	**Releasing of protect.**	
4				Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.90 ± 0.01 Vdc.	
5	2	00	01	Specification of page 2, category 1.	
6	2	15		Read the adjusting remote commander display data and take it as D03.	
7	D	03		Set D03, and press the PAUSE button.	Camera recording mode
8				Turn off the power supply.	

9-5. SERVO SYSTEM ADJUSTMENTS

1. Switching position adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting tracking(WR5-1CP)
Measurement Point	CH1: Pin ⑨ of CN002 (RF SWP) CH2: Pin ⑫ of CN002 (PB RF CH2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	04 (SW POSITION (LOW)) 05 (SW POSITION (HIGH))
Specified Value	t1=0 ± 10 μsec.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	05	80	Initial setting.	
3	D	05		Change the data with the PLAY and STOP buttons, and minimize t1.	Playback mode
4	D	05		Press the PAUSE button.	
5	D	04		Change the data with the PLAY and STOP buttons, and minimize t1.	Playback mode
6	D	04		Press the PAUSE button.	
7				Check that t1 satisfies the specified value. If not, repeat steps 03 to 07 in order.	

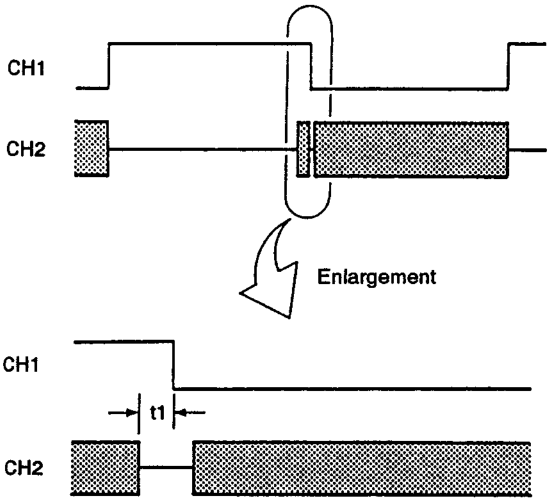
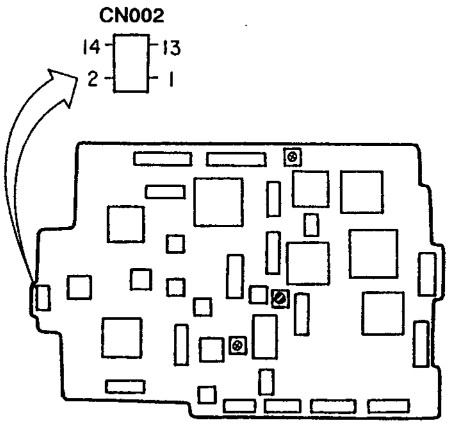


Fig. 9-6.



VC-129 Board Component side Side A

Fig. 9-7.

2. CAP FG duty adjustment (VC-129 board)

Mode	Record
Signal	Color bar
Measurement Point	Pin ④ of CN002 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	38 (CAP FG BIAS)
Specified Value	Duty=50 ± 1%

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	38	80	Initial setting	
3	D	38		Press the PLAY and STOP buttons, and adjust the duty of the CFG waveform to the specified value.	Recording mode
4	D	38		Press the PAUSE button.	

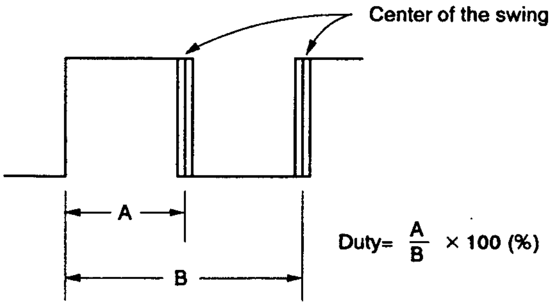


Fig. 9-8.

9-6. VIDEO ADJUSTMENTS

Basically, the video system must be adjusted according to the following adjustment procedures.

The color video signal supplied from the pattern generator is used as the video input signal for adjusting the video system in the recording mode. Check that the sync signal and the color burst signal satisfy the standards specified for the set-ups for adjustments shown in Figs. 9-2 and 9-3.

Use a ME tape unless specified otherwise. Also check that the Hi8 switch is at "AUTO" at the menu display.

[Adjusting procedure]

1) PB RF equalizer fo adjustment
2) Playback frequency characteristics adjustment
3) Flying erase check
4) VXO oscillation frequency check
5) SYNC AGC adjustment
6) IR adjustment
7) Chroma comb filter adjustment
8) Emphasis input level adjustment
9) PB Y level adjustment
10) Normal mode Y FM deviation adjustment
11) Normal mode Y FM carrier frequency adjustment
12) Hi8 mode Y FM deviation adjustment
13) Hi8 mode Y FM carrier frequency adjustment
14) REC Y RF level adjustment
15) Chroma emphasis adjustment
16) REC C RF level adjustment
17) REC C preset adjustment
18) Hi8 MP tape REC C level adjustment
19) Normal MP tape REC C level adjustment
20) REC ATF level check
21) Chroma flicker adjustment
22) REC AFM level check
23) Chroma comb filter fine adjustment
24) Delay burst phase adjustment
25) Character generator oscillation frequency adjustment

1. PB RF equalizer f0 adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	CH1: Pin ⑪ of CN002 EXT TRIG: Pin ⑨ of CN002
Measuring Instrument	Oscilloscope TRIG SLOP: −
Adjustment Page	D
Adjustment Address	3C (MT FO (E)), 3D (MT FO (L))
Specified Value	8.5 MHz level is maximum

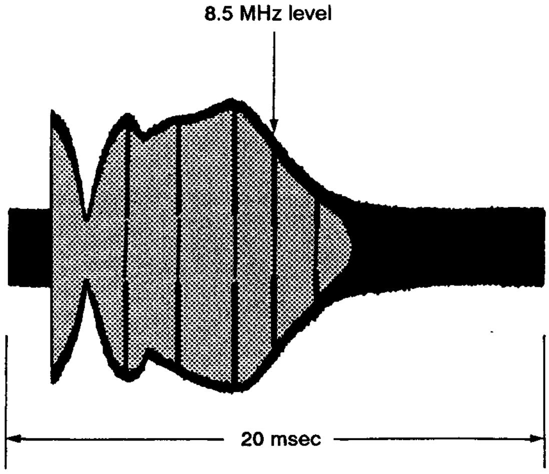


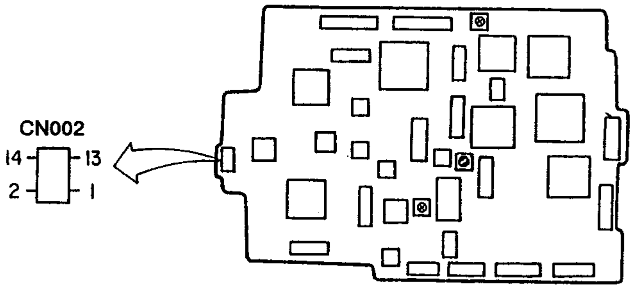
Fig. 9-9.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	42		Note down the data, and set the data to FF. (Maximizing the f0 peaking level)	
3	D	3C		Change the data with the PLAY and STOP buttons, and maximizing the 8.5 MHz level of the PB RF waveform. Press the PAUSE button.	Playback mode
4	D	3C		Adjust to the same data as address 3C, and press the	
5	D	3D		PAUSE button. Set the data noted at step 2, and press the PAUSE	
6	D	42		button. Check that t1 satisfies the specified value.	

2. Playback frequency characteristics adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	Refer to Fig. 9-11.
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	42 (MT 1A (E)), 44 (MT 1B (E)), 3E (MT 2A (E)), 40 (MT 2B (E)), 43 (MT 1A (L)), 45 (MT 1B (L)), 3F (MT 2A (L)), 41 (MT 2B (L))
Specified Value	4.5 MHz level: 8.5 MHz level= 3: (2.0 ± 0.2)


CN002
14
13
2
1

VC-129 Board Component side Side A

Fig. 9-10.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	1	00	01	**Releasing of protect.**	
2	D	42		Change the data with the PLAY and STOP buttons, and adjust the level ratio of the 4.5 MHz and 8.5 MHz sections of the PB RF waveform of channel 1a to the specified value.	Playback mode
3	D	42		Press the PAUSE button.	
4	D	44 3E 40		Adjust in the same way for channel 1b (address 44), channel 2a (address 3E), channel 2b (address 40).	Playback mode
5	D	43		Adjust to the same data as address 42, and press the PAUSE button.	
6	D	45		Adjust to the same data as address 44, and press the PAUSE button.	
7	D	3F		Adjust to the same data as address 3E, and press the PAUSE button.	
8	D	41		Adjust to the same data as address 40, and press the PAUSE button.	

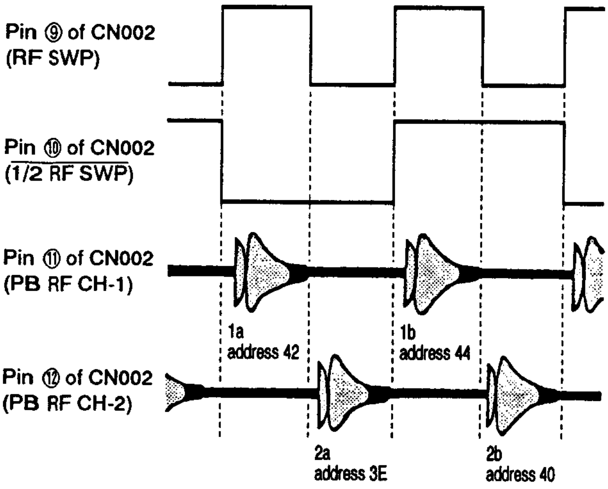

Pin ⑨ of CN002
(RF SWP)
Pin ⑩ of CN002
(1/2 RF SWP)
Pin ⑪ of CN002
(PB RF CH-1)
Pin ⑫ of CN002
(PB RF CH-2)
1a
address 42
1b
address 44
2a
address 3E
2b
address 40

Fig. 9-11.

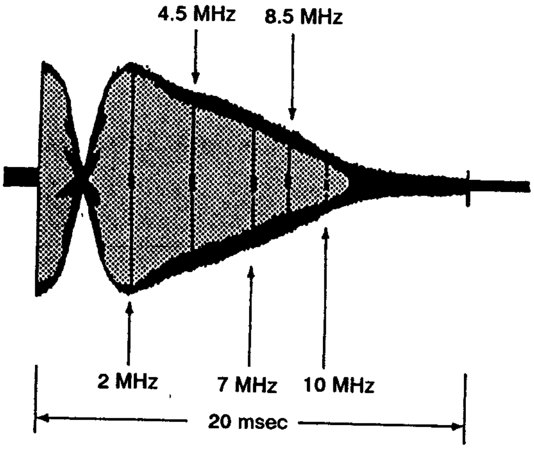


Fig. 9-12.

3. Flying erase check (VC-129 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ⑮ of CN001 (FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Above 7.5 MHz Voltage: Above 6.0 Vp-p (ME tape) Above 7.5Vp-p (MP tape)

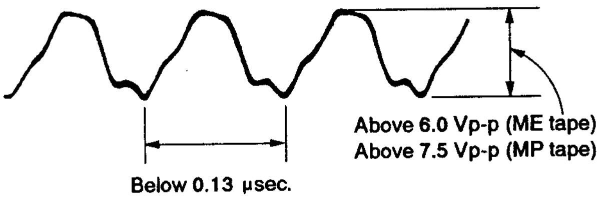

Above 6.0 Vp-p (ME tape)
Above 7.5 Vp-p (MP tape)
Below 0.13 μsec.

Fig. 9-13.

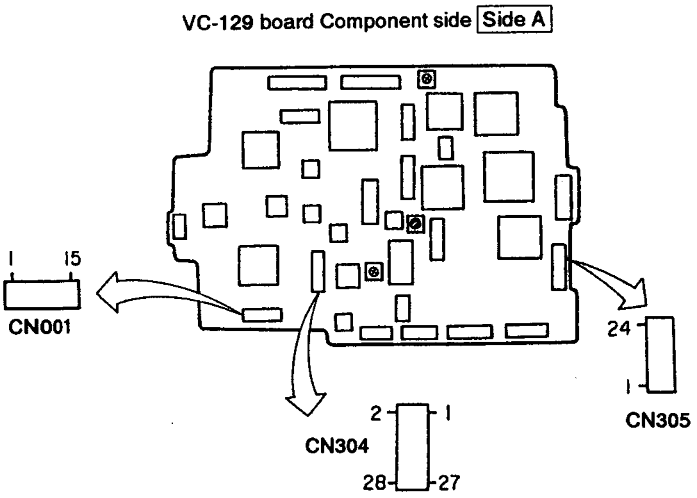

VC-129 board Component side Side A
1
15
CN001
2
1
CN304
28
27
24
1
CN305

Fig. 9-14.

4. VXO oscillation frequency check (VC-129 board)

Mode	Playback
Signal	Any tape
Measurement Point	Pin ⑫ of IC404 or Pin ㉗ of CN304
Measuring Instrument	Frequency counter
Specified Value	4433619 ± 50 Hz

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ) and low capacity (below 10 pF) buffer.

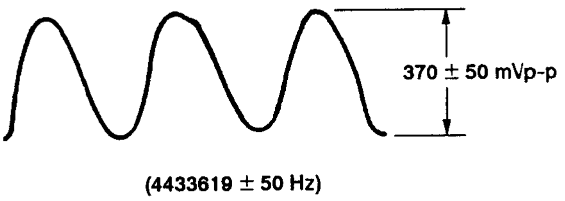

370 ± 50 mVp-p
(4433619 ± 50 Hz)

Fig. 9-15.

5. SYNC AGC adjustment (VC-129 board)

Mode	Camera mode recording
Signal	Y signal of color bar (Note 1)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	A=1.00 ± 0.02V

Note 1: Input the Y signal using the camera section measuring pin tool (J-6082-139-A) as shown in the following figure.

Note 2: Insert the plug in the S VIDEO input/output terminal.

Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Note 4: When the lens block is connected, cover the lens with a black cap.

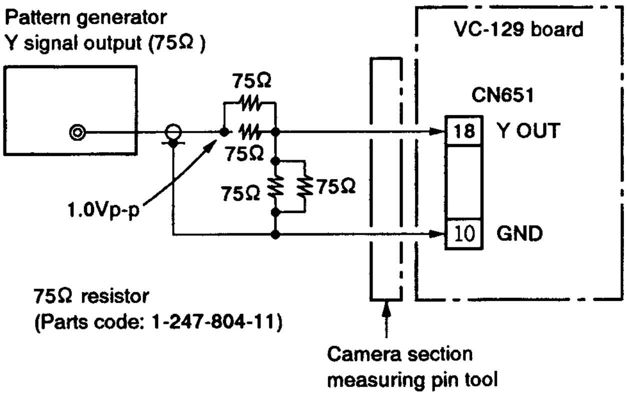

Pattern generator
Y signal output (75Ω)
75Ω
75Ω
75Ω
75Ω
1.0Vp-p
75Ω resistor
(Parts code: 1-247-804-11)
VC-129 board
CN651
18
Y OUT
10
GND
Camera section
measuring pin tool

Fig. 9-16.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	1	00	01	**Releasing of protect.**	
2	D	4A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	4A		Press the PAUSE button.	

Related Adjustments:
"Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

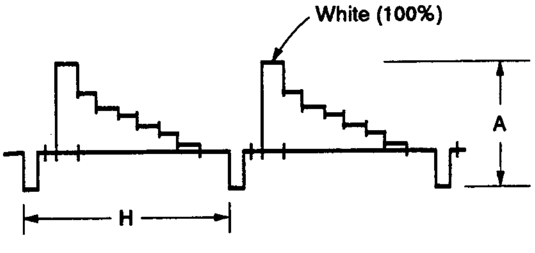

White (100%)
A
H

Fig. 9-17.

6. IR adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (A) (Below 40 mVp-p)

Connection:

1) Connect Pin ⑭ of IC401 (or Pin ② of IC403) and Pin (51) of IC401 with a jumper wire.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4D		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component (A).	Recording mode Connect Pin ② of IC403 and Pin (51) of IC401 with a jumper wire.
4	D	4D		Press the PAUSE button.	

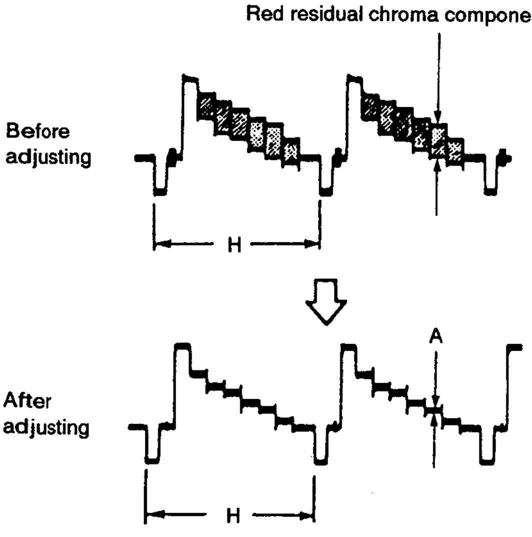
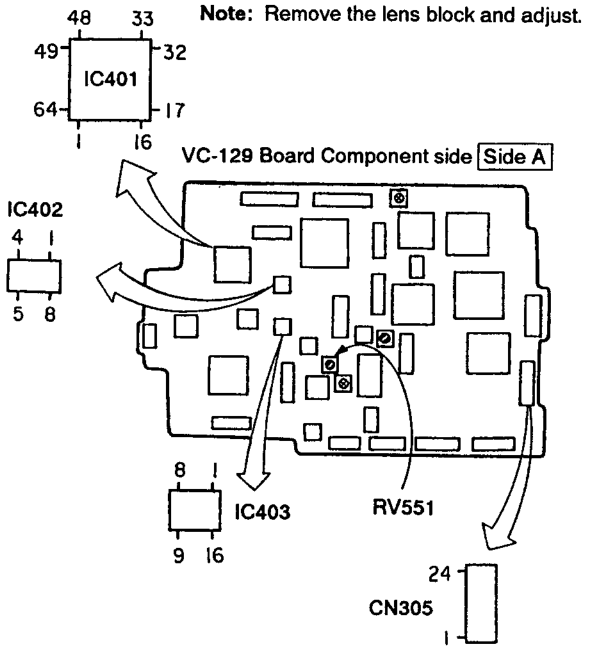

Red residual chroma component
Before adjusting
H
A
After adjusting
H

Fig. 9-18.


Note: Remove the lens block and adjust.

48
33
49
32
IC401
64
17
1
16
VC-129 Board Component side
Side A
IC402
4
1
5
8
8
1
IC403
9
16
RV551
24
CN305
1

Fig. 9-19.

Related Adjustments:
"Chroma comb filter adjustment", "Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

7. Chroma comb filter adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Measuring Instrument	Oscilloscope
Adjusting Element	RV551 (Phase)
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual chroma component (A)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Minimize the residual chroma component (A) with RV551.	Recording mode
4	D	4C		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component.	Recording mode
5	D	4C		Press the PAUSE button.	
6				Repeat steps 3 to 5 in order.	

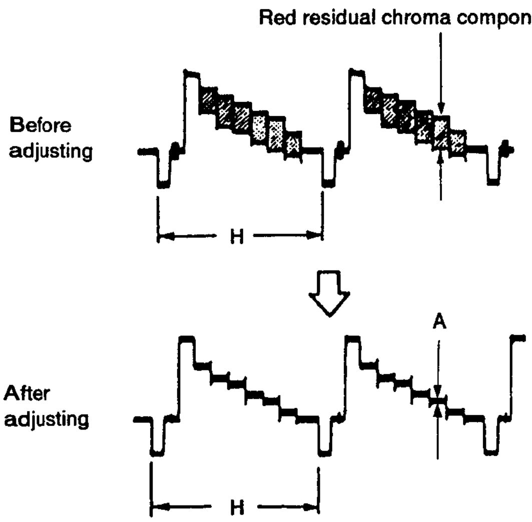


Fig. 9-20.

Related Adjustments:
"Chroma comb filter fine adjustment".

8. Emphasis input level adjustment (VC-129 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑤ of IC402 (JL408)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMP LEVEL (REC)) 5B (EMP LEVEL (PB))
Specified Value	A=0.50 ± 0.01V

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of the protect.**	
2	D	5A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	5A		Press the PAUSE button.	
4	D	5B		Set the same data as address: 5A.	
5	D	5B		Press the PAUSE button.	

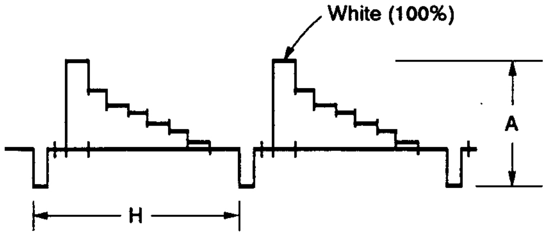


Fig. 9-21.

Related Adjustments:
"PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Hi8 mode Y FM deviation adjustment".

9. PB Y level adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section • Normal mode WR5-5CSP • Hi8 mode WR5-8CSE
Measurement Point	Pin ⑬ of CN305 (S-Y I/O (Note 1 and Note 2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (PB Y L) • Hi8 mode 58 (PB Y E)
Specified Value	A=1.00 ± 0.02V

Note 1: Insert the plug into the S VIDEO input/output terminal.
Note 2: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Play back the color bar section of the normal mode alignment tape.	
3	D	59		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-5CSP.
4	D	59		Press the PAUSE button.	
5				Play back the color bar section of the Hi8 mode alignment tape.	
6	D	58		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-8CSE.
7	D	58		Press the PAUSE button.	

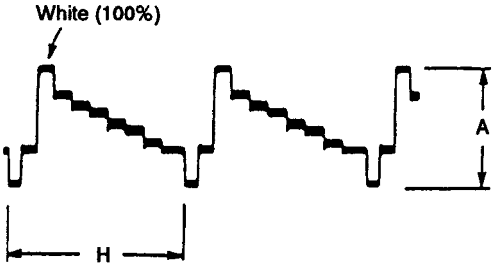


Fig. 9-22.

10. Normal mode Y FM deviation adjustment (VC-129 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (DEV. –L)
Specified Value	A=1.00 ± 0.04V

Note 1: Check that the “Emphasis input level adjustment” and “PB Y level adjustment” have been completed.
Note 2: Insert the plug into the S VIDEO input/output terminal.
Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω during playback mode.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Record the color bar signal.	Normal MP tape
4				Play back the recorded signal.	
5				Compare the playback signal level with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	51		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	51		Press the PAUSE button.	
8				Return to step 3.	

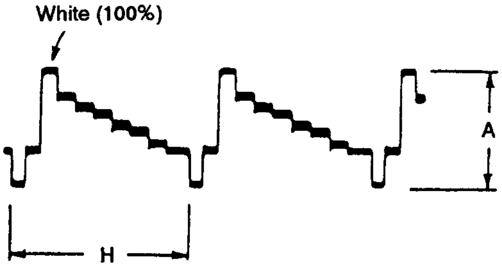


Fig. 9-23.

Related Adjustments:
“Normal mode Y FM carrier frequency adjustment”.

11. Normal mode Y FM carrier frequency adjustment (VC-129 board)

Mode	Record
Signal	Non-signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (CAR. -L)
Specified Value	4.37 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4F		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Normal MP tape Recording mode, no signal input
4	D	4F		Press the PAUSE button.	

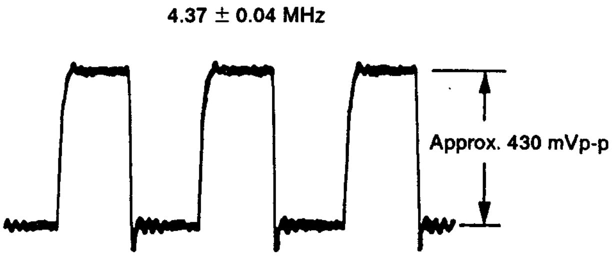


Fig. 9-24.

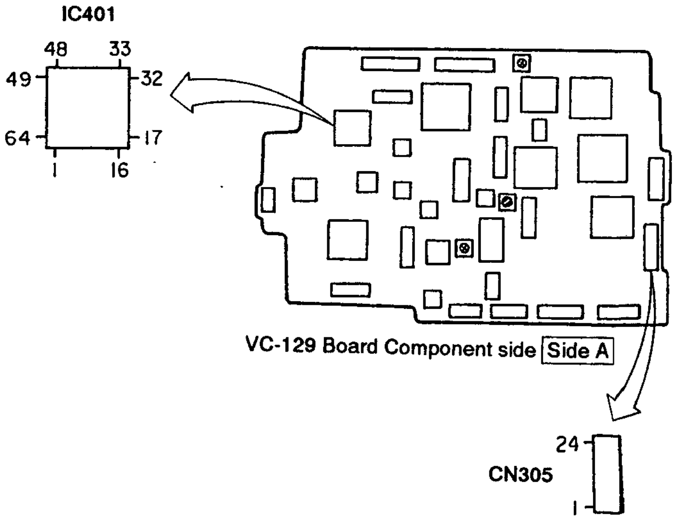

IC401
48
33
49
32
64
17
1
16
VC-129 Board Component side
Side A
24
CN305
1

Fig. 9-25.

12. Hi8 mode Y FM deviation adjustment (VC-129 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	50 (DEV. -E)
Specified Value	A=0.50 ± 0.025V

Note 1: Check that "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.
Note 2: Insert the plug into the S VIDEO input/output terminal.
Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω during playback mode.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a ME type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Record the color bar signal.	Hi8 ME tape
4				Play back the recorded signal.	
5				Compare the playback signal level with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	51		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	51		Press the PAUSE button.	
8				Return to step 3.	

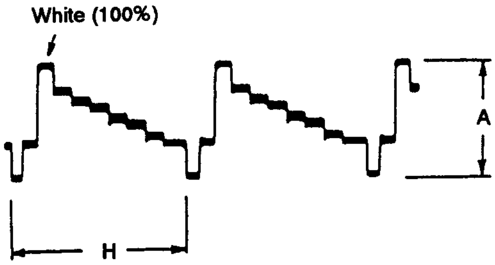


Fig. 9-26.

Related Adjustments:
"Hi8 mode Y FM carrier frequency adjustment".

13. Hi8 mode Y FM carrier frequency adjustment (VC-129 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4E (CAR. –E)
Specified Value	5.98 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a ME type tape.	
2	**1**	**00**	**01**	**Release the protect.**	
3	D	4E		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Hi8 ME tape Recording mode, no signal input
4	D	4E		Press the PAUSE button.	

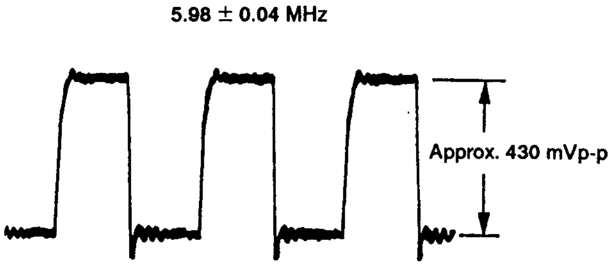
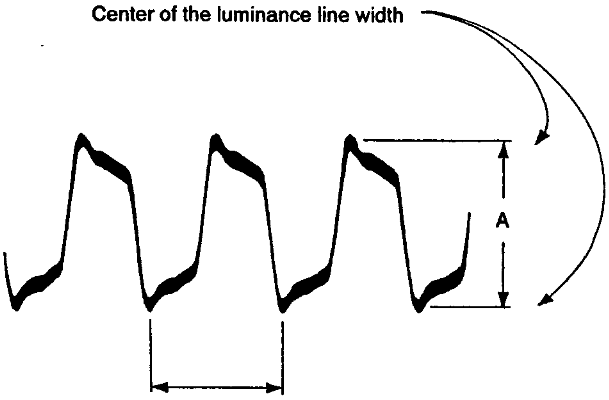


Fig. 9-27.

14. REC Y RF level adjustment (VC-129 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	52 (REC Y (ME E)), 53 (REC Y (MP E)), 54 (REC Y (ME L)), 55 (REC Y (MP L))
Specified Value	• ME E mode A=310 ± 5 mVp-p • MP E mode A=290 ± 5 mVp-p • MP L mode A=280 ± 5 mVp-p



E mode (Hi8 mode): Approx. 0.17 µsec.
L mode (Normal mode): Approx. 0.23 µsec.

Fig. 9-28.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the Hi8 switch is at "AUTO" at the menu display.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Load a ME tape, and set the recording mode. (Setting the ME E mode)	
4	D	52		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (ME E mode adjustment)	Hi8 ME tape, recording mode
5	D	52		Press the PAUSE button.	
6	D	54		Set the same data as address 52, and press the PAUSE button. (ME L mode adjustment)	
7				Load a Hi8 MP tape, and set the recording mode. (Setting the MP E mode)	
8	D	53		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP E mode adjustment)	Hi8 MP tape, recording mode
9	D	53		Press the PAUSE button.	
10				Load a normal MP tape, and set the recording mode. (Setting the MP L mode)	
11	D	55		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP L mode adjustment)	Normal MP tape, recording mode
12	D	55		Press the PAUSE button.	

15. Chroma emphasis f0 adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ㉔ of IC404 (JL402)
Measuring Instrument	Oscilloscope
Adjustment Page	FL405
Adjustment Address	Minimum f0 components

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Minimize the amplitude of the rear part of the yellow section of the chroma signal with FL405.	

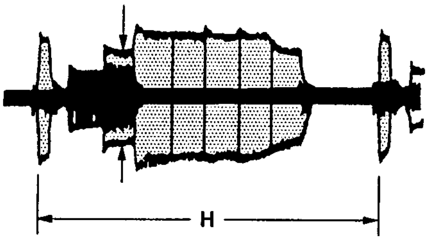

Minimize the amplitude of the rear part of the yellow section

Fig. 9-29.

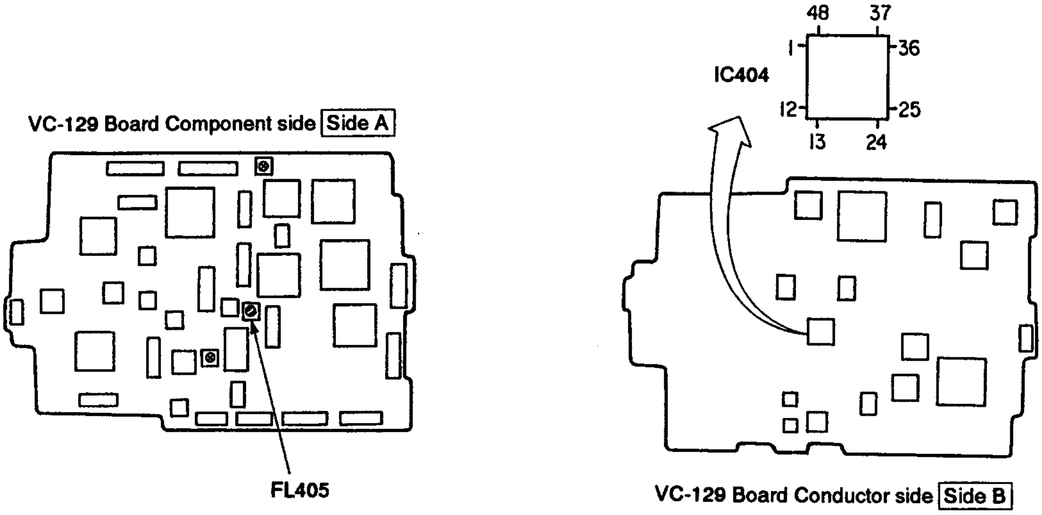

VC-129 Board Component side Side A
FL405
IC404
48
37
1
36
12
25
13
24
VC-129 Board Conductor side Side B

Fig. 9-30.

16. REC C RF level adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ③ of IC405 (REC C RF) (JL029)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8C (REC C RV)
Specified Value	A=66 ± 2 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	8C		Change the data with the PLAY and STOP buttons, and adjust the amplitude (A) of the flat section of the "red" of the REC C RF signal to the specified value.	Recording mode
3	D	8C		Press the PAUSE button.	

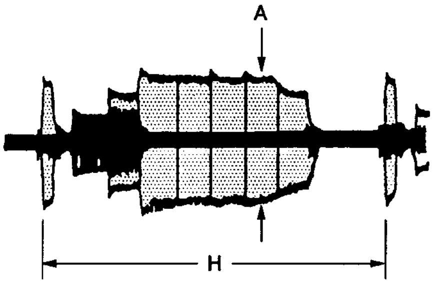


Fig. 9-31.

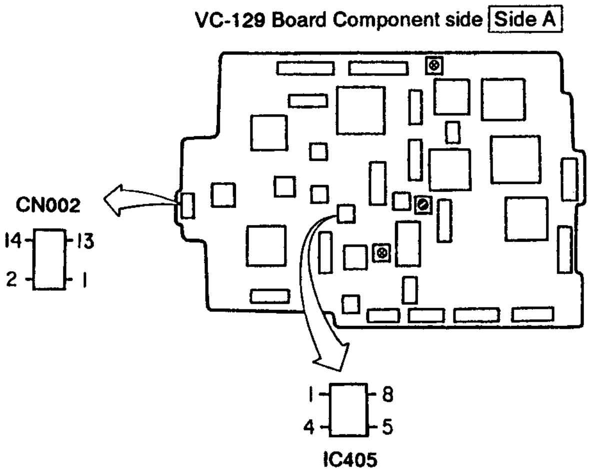


Fig. 9-32.

Related Adjustments:
"REC preset adjustment", "Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment", "Chroma flicker check and adjustment".

17. REC C preset adjustment (VC-129 board)

Mode	Record
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a: Pin ⑦ of CN002 CH2a: Pin ⑧ of CN002 CH1b: Pin ⑤ of CN002 CH2b: Pin ⑥ of CN002 CH2 (10:1 probe) Video output terminal
Measuring Instrument	Oscilloscope TRIGGER SOURCE: CH2
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	A=60 ± 2 mVp-p

Note: Use a ME type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:
1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

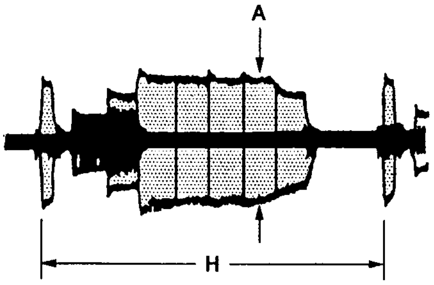
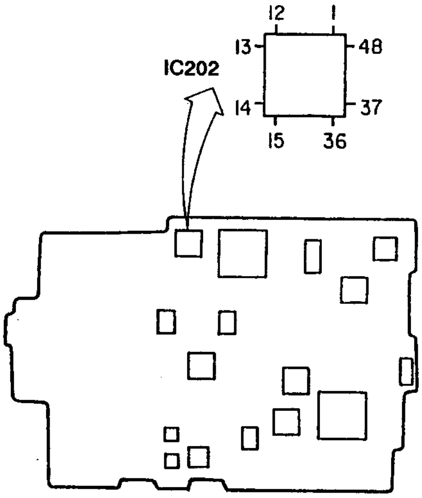


Fig. 9-33.



VC-129 Board Conductor side Side B

Fig. 9-34.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Connect the CH1 probe of the oscilloscope (REC 1a) to Pin ⑦ of CN007.	
5	D	30		Change the data with the PLAY and STOP buttons, and adjust the CH1a REC C level (A) to the specified value.	Hi8 ME tape, recording mode
6	D	30		Press the PAUSE button.	
7	D	32 34 36		Adjust the REC C level of CH2a (address 34), CH1b (address 32) and CH2b (address 36) respectively in the same way.	Hi8 ME tape, recording mode
8	D	31		Set the same data as address 30, and press the PAUSE button.	
9	D	33		Set the same data as address 32, and press the PAUSE button.	
10	D	35		Set the same data as address 34, and press the PAUSE button.	
11	D	37		Set the same data as address 36, and press the PAUSE button.	
12	D	52		Set the data noted down at step 2, and press the PAUSE button.	

Related Adjustments:
"Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment".

18. Hi8 MP tape REC C level adjustment (VC-129 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	85 (ME CONT (MP E)) 89 (ME CONT (MP E LP))
Specified Value	A=40 ± 1.5 mVp-p

Note: Use a Hi8 MP type tape. Check that the Hi8 switch is at "AUTO" at the menu display.

Connection:
1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a Hi8 MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	53		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	53		Press the PAUSE button.	
5	D	85		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Hi8 MP tape, recording mode
6	D	85		Press the PAUSE button.	
7	D	53		Set the data noted down at step 2, and press the PAUSE button.	
8	D	89		Adjust to the same data as address 85, and press the PAUSE button.	

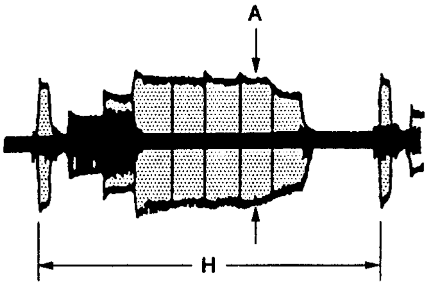


Fig. 9-35.

19. Normal MP tape REC C level adjustment (VC-129 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	87 (ME CONT (MP L)) 8B (ME CONT (MP L LP))
Specified Value	A=50 ± 2.0 mVp-p

Note: Use a normal MP type tape.

Connection:

1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	55		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	55		Press the PAUSE button.	
5	D	87		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Normal MP tape, recording mode
6	D	87		Press the PAUSE button.	
7	D	55		Set the data noted down at step 2, and press the PAUSE button.	
8	D	8B		Adjust to the same data as address 87, and press the PAUSE button.	

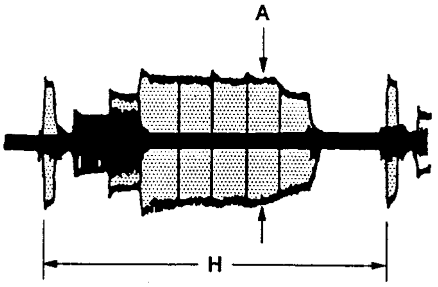


Fig. 9-36.

20. REC ATF level check (VC-129 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (⑦ of CN002), CH2a: (⑧ of CN002), CH1b: (⑤ of CN002), CH2b: (⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A=9.5 ± 2.0 mVp-p

Note: Use a Hi8 MP type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:
1) Remove CN801 of the AU-146 board.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Check that the REC ATF signal level (A) satisfies the specified value for CH1a to CH2b.	Hi8 ME tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button.	

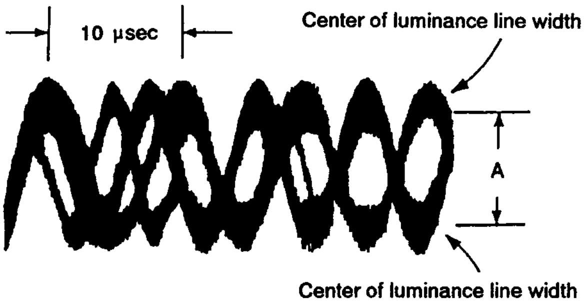

10 μsec
Center of luminance line width
A
Center of luminance line width

Fig. 9-37.

21. Chroma flicker check and adjustment (VC-129 board)

Mode	Self record/playback (LP)
Signal	Color bar
Measurement Point	CH-1 (1:1 probe): Pin ㊷ of IC404 (PBC RF IN) CH-2 (10:1 probe): Pin ⑩ of CN002 ($\overline{1/2\ \mathrm{RF\ SWP}}$)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	$\frac{Vc1a}{Vc1b} \times 100 = 100^{+12}_{-11}$ (%) $\frac{Vc2a}{Vc2b} \times 100 = 100^{+12}_{-11}$ (%)

Note 1: Check that "REC C preset adjustment" and "REC ATF level check" have been completed.

Note 2: Use a ME type tape and check that the "Hi8" switch is at "AUTO" at the menu display.

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Record the color bar signal.	Hi8 ME tape, recording mode
2				Play back the recorded section.	
3				Measure the playback levels of channels 1a, 1b, 2a, 2b, and take them as Vc1a, Vc1b, Vc2a, Vc2b respectively.	Playback mode
4				Check that the specified values have been satisfied. If not, perform the following adjustments.	

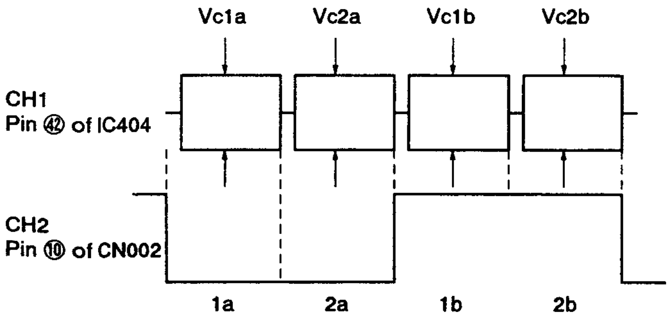
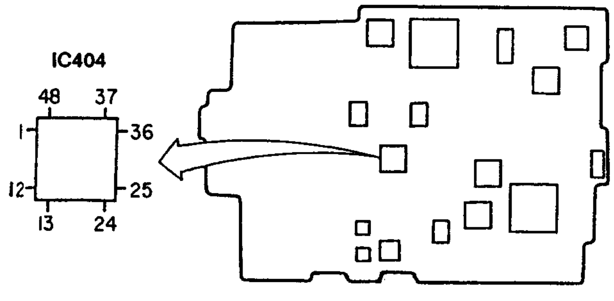


Fig. 9-38.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Calculate Δ Vc1 and Vc2 from the values obtained at step 3 of "Checking Method" using the following equation. $\Delta Vc1 = \lvert Vc1a - Vc1b \rvert /2$ $\Delta Vc2 = \lvert Vc2a - Vc2b \rvert /2$ **Note:** $\lvert \quad \rvert$ shows the absolute value.	
2				Calculate the new specification values for "REC C preset adjustment" using the following equation. The smaller value when the playback levels are Vc1a and Vc1b is $\left\{\frac{\text{(The smaller value of Vc1a and Vc1b)} + \Delta Vc1}{\text{(The smaller value of Vc1a and Vc1b)}}\right\} \times 60\text{(mVp-p)}$ The greater value when the playback levels are Vc1a and Vc1b is $\left\{\frac{\text{(The greater value of Vc1a and Vc1b)} + \Delta Vc1}{\text{(The greater value of Vc1a and Vc1b)}}\right\} \times 60\text{(mVp-p)}$ The smaller value when the playback levels are Vc2a and Vc2b is $\left\{\frac{\text{(The smaller value of Vc2a and Vc2b)} + \Delta Vc2}{\text{(The smaller value of Vc2a and Vc2b)}}\right\} \times 60\text{(mVp-p)}$ The greater value when the playback levels are Vc2a and Vc2b is $\left\{\frac{\text{(The greater value of Vc2a and Vc2)} + \Delta Vc2}{\text{(The greater value of Vc2a and Vc2b)}}\right\} \times 60\text{(mVp-p)}$	
3				Perform "REC C preset adjustment" taking the values calculated from Vc1a, Vc1b, Vc2a, Vc2b at step 2 as the specified values for 1a, 1b, 2a, and 2b respectively.	
4				After the adjustment, perform "Chroma flicker check" again, and repeat the adjustment until the specified values are satisfied.	



VC-129 Board Conductor side Side B

Fig. 9-39.

22. REC AFM level check (VC-129 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (Pin ⑦ of CN002), CH2a: (Pin ⑧ of CN002), CH1b: (Pin ⑤ of CN002), CH2b: (Pin ⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A=15.0 ± 2.5 mVp-p

Note 1: Use a Hi8 MP type tape, and check that the "Hi8" switch is at "AUTO".

Note 2: Do not insert anything into the right audio input terminal.
(Monaural recording mode)

Connection:

1) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4	D			Check that the REC AFM signal level (A) satisfies the specified value for CH1a to CH2a.	Hi8 MP tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button of the adjusting remote commander.	

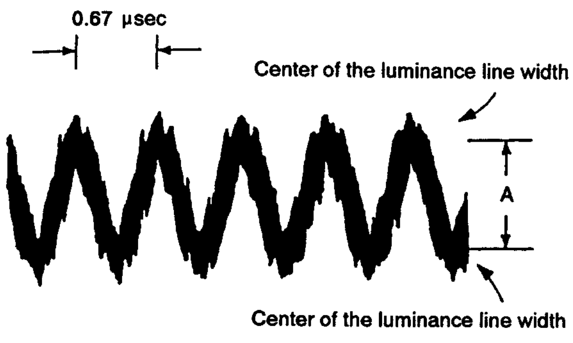

0.67 μsec
Center of the luminance line width
A
Center of the luminance line width

Fig. 9-40.

23. Chroma comb filter fine adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section
Measurement Point	Video input/output terminal
Measuring Instrument	Vectorscope
Adjusting Element	RV551
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum color luminance point movement when the "Edit" switch is turned on/off

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Minimize the movements of the color luminance point when the edit is on/off with RV551.	Playback mode
3	D	4C		Change the data with the PLAY and STOP buttons, and minimize the movements of the color luminance point when the edit is on/off.	Playback mode
4	D	4C		Press the PAUSE button.	
5				Repeat steps 2 to 4.	

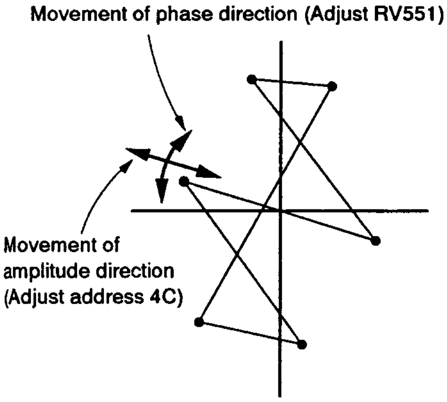

Movement of phase direction (Adjust RV551)
Movement of amplitude direction (Adjust address 4C)

Fig. 9-41.

24. Delay burst phase adjustment (VC-129 board)

Mode	Playback pause
Signal	Alignment tape: For operation check (WR5-4CL) Color bar section
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	D
Adjustment Address	67 (PAL JOG)
Specified Value	Minimum shaking of yellow and blue luminance points

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	67		Change the data with the PLAY and STOP buttons, and minimize the shaking of yellow and blue luminance points.	Playback pause mode
3	D	67		Press the PAUSE button.	

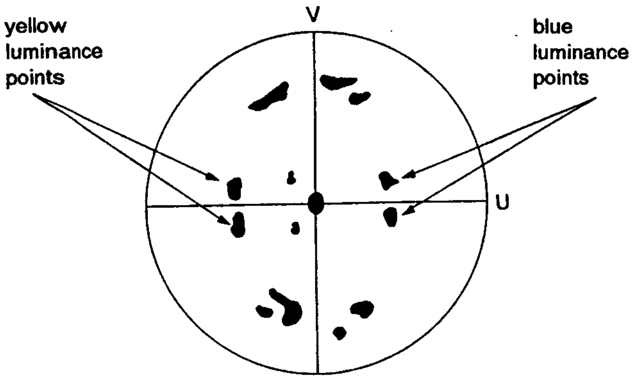


Fig. 9-42.

25. Character generator oscillation frequency adjustment (VC-129 board)

Mode	STOP
Signal	Arbitrary
Measurement Point	Pin ⑦ of IC905
Measuring Instrument	Frequency counter
Adjustment Page	CT901
Adjustment Address	6.75 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	2	00	01	Specification of page 2 category 01	
2	2	3D	01	Setting of continuous oscillation mode	
3				Adjust the oscillation frequency to the specified value with CT901.	Continuous oscillation mode

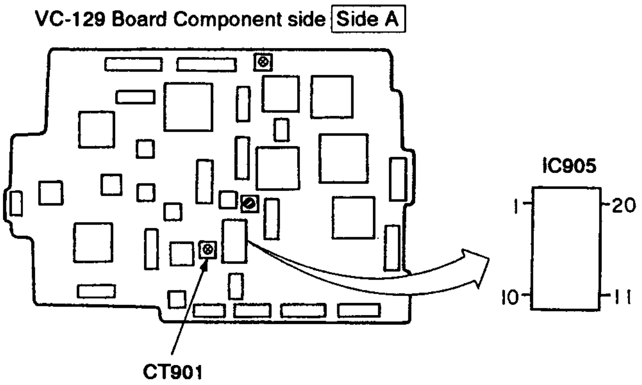


Fig. 9-43.

9-7. AUDIO SYSTEM ADJUSTMENT

- Adjust using the color bar signal as the video signal input.
- Unless specified otherwise, use the Hi8 ME tape.

[Connecting the measuring equipments for audio]

In addition to the measuring equipments for the video system, connect the measuring equipments for the audio system as shown in Fig. 9-40, and adjust with the power supply switch at "Player". Set the HiFi SOUND switch of the menu screen to "OFF" unless specified otherwise.

Note: 1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.

2) Be sure to insert the plug (shorting plug or dummy plug, etc.,) into the audio output terminal (right). If the plug is not inserted, the monaural mode will be set, and correct adjustments cannot be carried out.
(Monaural mode)
During recording······REC AFM RF 1.7 MHz carrier will not be output.
During playback ······The L+R signal will be output from the audio output terminal (left).

3) Adjustments for channel R in adjustments for both channels L and R are in the [ ].

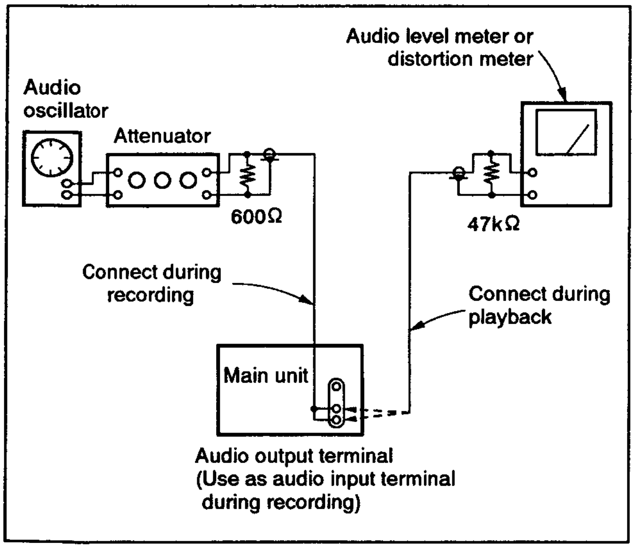

Audio level meter or distortion meter
Audio oscillator
Attenuator
600Ω
47kΩ
Connect during recording
Connect during playback
Main unit
Audio output terminal (Use as audio input terminal during recording)

Fig. 9-44.

[Adjusting Procedure]

1) 1.5 MHz carrier frequency check
2) 1.7 MHz carrier frequency check
3) 1.5 MHz recording level check
4) 1.7 MHz recording level check
5) E-E output level check
6) REC matrix L–R adjustment
7) REC matrix L+R check
8) IR adjustment
9) 1.5 MHz deviation adjustment
10) 1.7 MHz deviation adjustment
11) PB matrix L adjustment
12) PB matrix R check
13) Overall level characteristics, distortion rate check
14) Separation check
15) Overall noise level check

1. 1.5 MHz carrier frequency check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC801
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.500 ± 0.002 MHz

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

2. 1.7 MHz carrier frequency check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC804
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.700 ± 0.002 MHz

Note: 1) Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.
2) Insert a shorting plug into the right audio input terminal.

3. 1.5 MHz record level check (AU-146 board)

Mode	Record (Monaural)
Signal	No signal
Measurement Point	Pins ⑦ of CN801 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	A=34 ± 4 mVp-p

Note: Do not insert the plug into the right audio input terminal.

Checking method:

Order	**Procedure**
1	Read the center of the luminance line width and note down the read level.

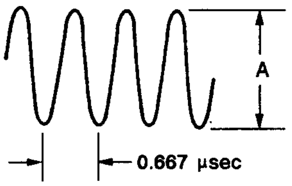


Fig. 9-45.

4. 1.7 MHz recording level check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN801 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	$\frac{\text{1.7 MHz carrier level}}{\text{1.5 MHz carrier level}} = 0.80 \pm 0.12$

Note: Insert a shorting plug into the right audio input terminal.

Connection:

1) Remove C885 (0.01 μF) and check. After checking, connect a new capacitor.

Checking method:

Order	**Procedure**
1	Check that the 1.7 MHz carrier level is 0.80 ±0.12 times that of the 1.5 MHz carrier.

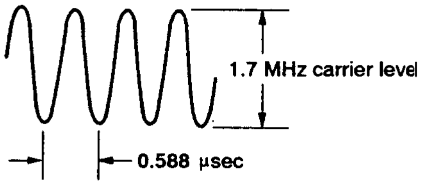
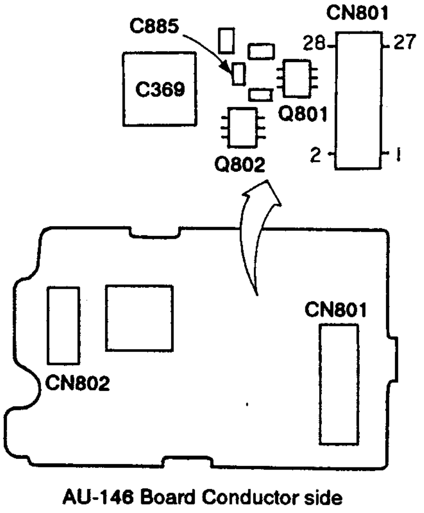


Fig. 9-46.



AU-146 Board Conductor side

Fig. 9-47.

5. E-E output level check (AU-146 board)

Mode	Record
Signal	400 Hz, –7.5 dBs right audio input terminal [left]
Measurement Point	Pin ⑲ of IC801 [Pin ⑲ of IC803]
Measuring Instrument	Oscilloscope
Specified Value	925^{+240}_{-190} mVp-p (–7.5 ± 2 dBs)

6. REC matrix L–R adjustment (AU-146 board)

Mode	Record
Signal	400 Hz, –7.5 dBs Input to both left and right terminals of the audio input terminal
Measurement Point	Pin ㉛ of IC804
Measuring Instrument	Oscilloscope (Use 1:1 probe)
Adjustment Page	D
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	0 ± 5 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	78		Change the data with the PLAY and STOP buttons, and minimize the 400 Hz signal level.	
3	D	78		Press the PAUSE button.	

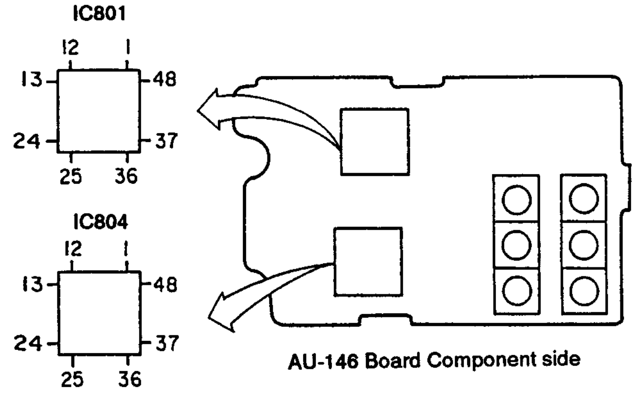


Fig. 9-48.

7. REC matrix L+R check (AU-146 board)

Mode	Record
Signal	1. 400 Hz, -7.5 dBs : Audio input terminal (left) No signal: Audio input terminal (right) 2. No signal: Audio input terminal (left) 400 Hz, -7.5 dBs: Audio input terminal (right)
Measurement Point	Pin ㉛ of IC801
Measuring Instrument	Oscilloscope
Adjustment Page	The level difference when the signal is input to only the left terminal and when the signal is input to only the right terminal should be 0 ± 10 mVp-p.

Note: When measuring the signal level of Pin ㉛ of IC801, wait for more than 1 minute after signal input before measuring. (To regulate the AGC.)

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Input the 400 Hz, -7.5 dBs signal only to the left audio input terminal. (Insert the shorting plug to the right audio input terminal.)	
2				Read the 400 Hz signal level of Pin ㉛ of IC801, and note it down. (Approximately 200 mVp-p)	Input signal to left channel only
3				Input the 400 Hz, -7.5 dBs signal only to the right audio input terminal. (Insert the shorting plug to the left audio input terminal.)	
4				Check that the 400 Hz signal level of Pin ㉛ of IC801 is (the value noted down at step 2) ± 10 mVp-p.	Input signal to right channel only

8. IR adjustment (AU-146 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS)
Measurement Point	Pins ㊹ and ⑥ of IC801 (1.5 MHz IR) Pins ㊹ and ⑥ of IC804 (1.5 MHz IR)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR), 7C (1.7 IR)
Specified Value	The DC voltage difference between Pins ㊹ and ⑥ should be 0 ± 10 mVdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Measure the DC voltage of Pin ㊹ of IC801. (Approx. 2100 mVdc)	
3	D	7A		Change the data with the PLAY and STOP buttons, and equalize the DC voltage of Pin ⑥ of IC801 and that of Pin ㊹ of IC801. (Voltage difference below 10 mVdc.)	WR5-9CS playback mode
4	D	7A		Press the PAUSE button.	
5				Measure the DC voltage of Pin ㊹ of IC804. (Approx. 2100 mVdc)	
6	D	7C		Change the data with the PLAY and STOP buttons, and equalize the DC voltage of Pin ⑥ of IC804 to that of Pin ㊹ of IC804. (Voltage difference below 10 mVdc.)	WR5-9CS playback mode
7	D	7C		Press the PAUSE button.	

9. 1.5 MHz deviation adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP)
Measurement Point	Left or right audio output terminal
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	–7.5 ± 0.5 dBs

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	7B		Change the data with the PLAY and STOP buttons, and adjust the 400 Hz signal level to the specified value.	WR5-5CSP playback mode
3	D	7B		Press the PAUSE button.	

Related Adjustments:
"PB matrix L adjustment".

10. 1.7 MHz deviation adjustment (AU-146 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS) Bilingual (Monoscope) section
Measurement Point	1. Pin ㉝ of IC801 2. Pin ㉝ of IC804
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1,7 DEV)
Specified Value	8 ± 0.05 graduation

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Connect the oscilloscope to Pin ㉝ of IC801.	
3				Adjust the 400 Hz signal amplitude to the 8.0 scale using the VOLT/DIV knob of the oscilloscope.	WR5-9CS playback mode
4				Connect the oscilloscope to Pin ㉝ of IC804.	
5	D	34		Change the data with the PLAY and STOP buttons, and adjust the amplitude of the 1 kHz signal to the 8 ± 0.05.	WR5-9CS playback mode
6	D	34		Press the PAUSE button.	

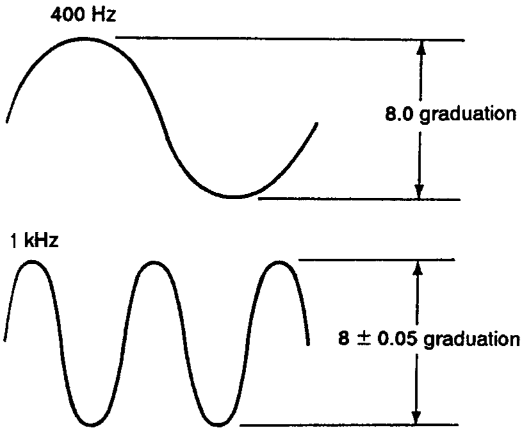


Fig. 9-49.

Related Adjustments:
"PB matrix L adjustment".

11. PB matrix L adjustment

Mode	Self record/playback
Signal	No signal: Audio input terminal (left) 400 Hz, –7.5 dBs: Audio input terminal (right)
Measurement Point	Pin ⑲ of IC801
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	79 (REC/PB MX (PB))
Specified Value	Below 20 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Input the 400 Hz, –7.5 dBs signal only to the right audio input terminal. (Insert the shorting plug to the left audio input terminal.)	
3				Record.	Input audio signal to right channel only
4				Remove the input signal.	
5				Play back the recorded section.	
6	D	79		Change the data with the PLAY and STOP buttons, and minimize the cross talk component (400 Hz).	
7	D	79		Press the PAUSE button.	

12. PB matrix R check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Audio input terminal (left) No signal: Audio input terminal (right)
Measurement Point	Pin ⑲ of IC804
Measuring Instrument	Oscilloscope
Specified Value	Below 30 mVp-p

Checking method:

Order	Procedure	Conditions
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal. (Insert the shorting plug to the right audio input terminal.)	
2	Record.	Input audio signal to left channel only.
3	Remove the input signal.	
4	Play back the recorded section.	
5	Check that the cross talk component (400 Hz) is below 30 mVp-p.	

13. Overall level characteristics, distortion rate check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Left audio input terminal [right] No signal: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: –7.5 ± 2 dBs Distortion rate: Below 1.5% (Note 2)

Note: 1) The [ ] contains points to be measured when checking the right channel.
2) Value when the 200Hz to 6 kHz band pass filter is used.

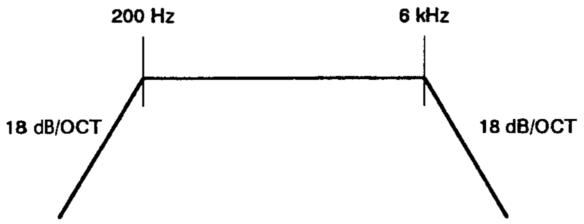


Fig. 9-50.

Checking method:

Order	Procedure
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal [right]. Note: Be sure to insert the shorting plug to the terminal of non-signal input.
2	Record the signal.
3	Remove the input signal, and playback the recorded section.
4	Check that the 400 Hz signal level of the left audio output terminal [right] is –7.5 ± 2 dBs, and that the distortion rate is below 1.5% (Note 2).

14. Separation check

Mode	Self recording/playback
Signal	No signal: Left audio input terminal [right] 400 kHz, –7.5 dBs: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below -27.5 dBs

Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

Order	Procedure
1	Insert a shorting plug into the left audio input terminal [right], and input a 1 kHz, –7.5 dBs signal only to the right audio input terminal [left].
2	Record the signal.
3	Remove the input signal.
4	Play back the recorded section.
5	Check that the cross talk level (1 kHz) of the left audio output terminal [right] is below –27.5 dBs.

15. Overall noise level check

Mode	Self record/playback
Signal	No signal: Left and right audio output terminals
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below –62.5 dBs

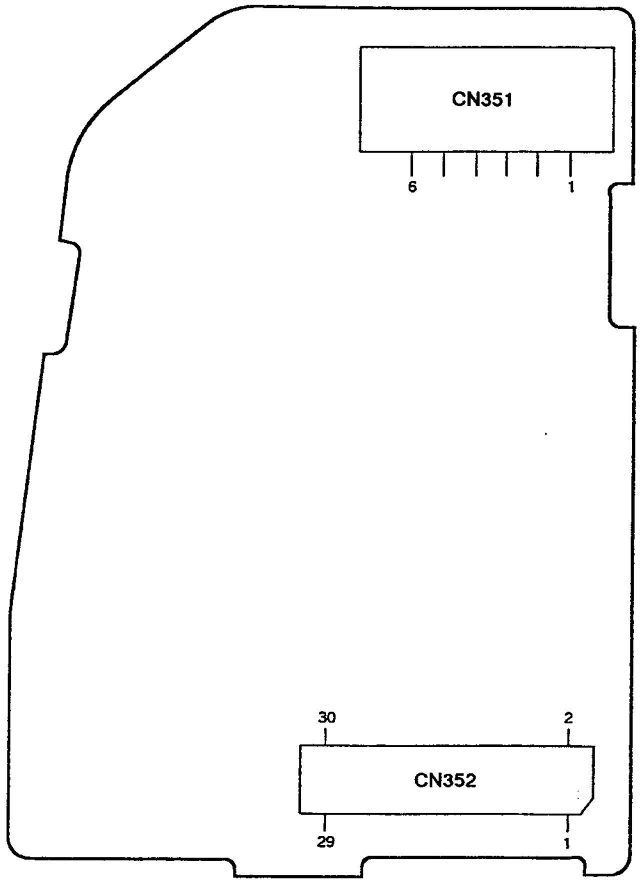
Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

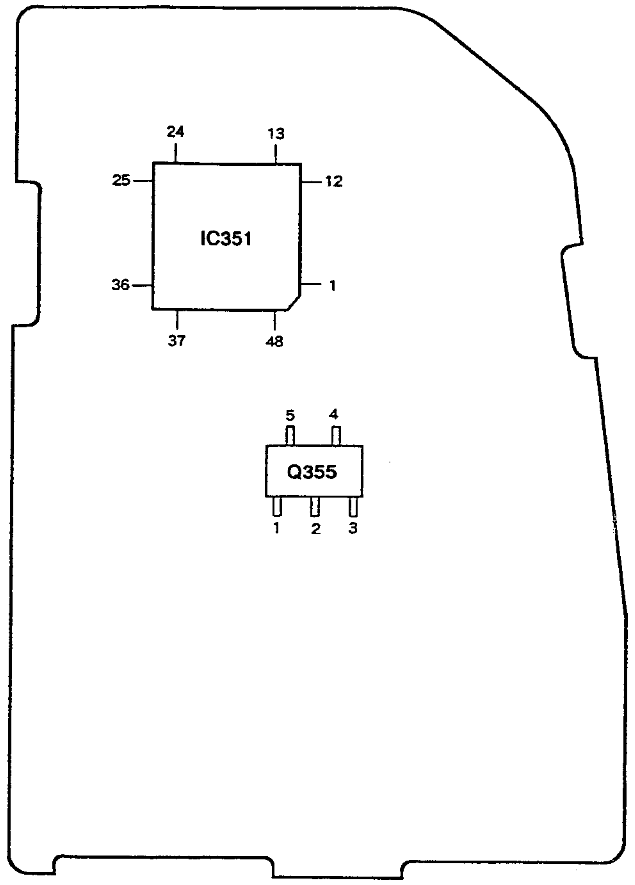
Order	Procedure
1	Insert the shorting plug to both the left and right audio input terminals.
2	Record.
3	Remove the shorting plug.
4	Play back the recorded section.
5	Check that the noise level of the left audio output terminal [right] is below –62.5 dBs.

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

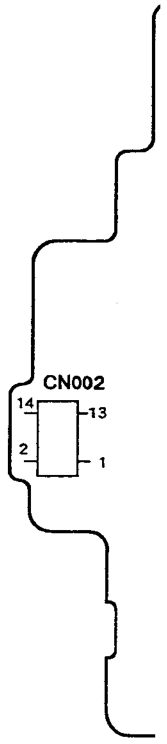
DD-54 BOARD (COMPONENT SIDE)



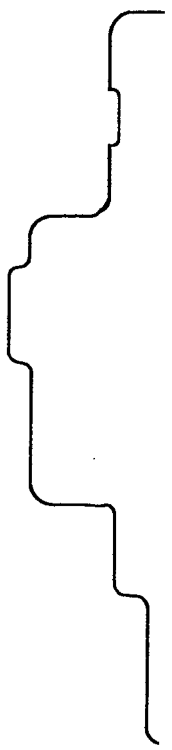
DD-54 BOARD (CONDUCTOR SIDE)



VC-129 BOA



VC-129 BOA



[right]
l [left]
ight]
y
ecking the

nput
IBs signal
t].

the left
7.5 dBs.

t
ight]
y

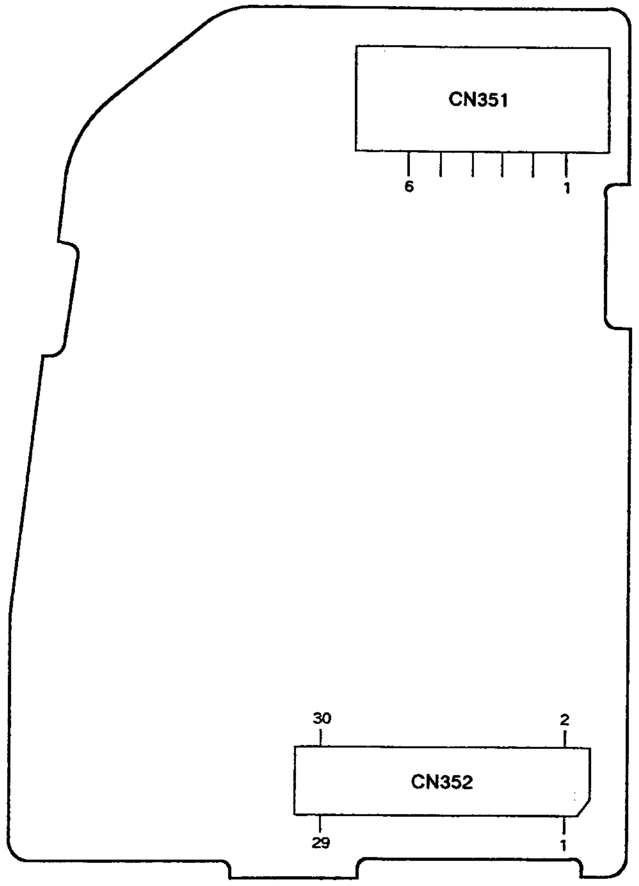
ecking the

d right

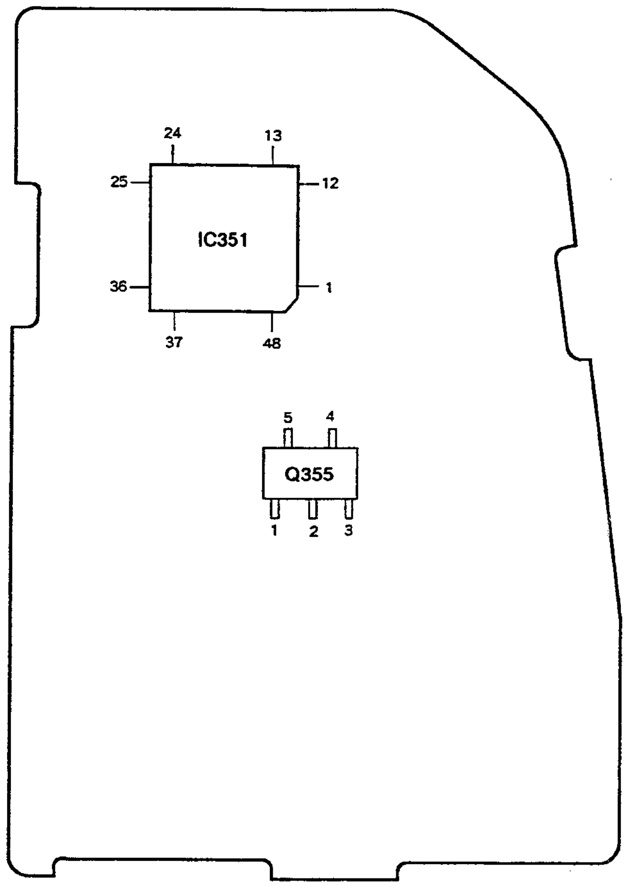
o output

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

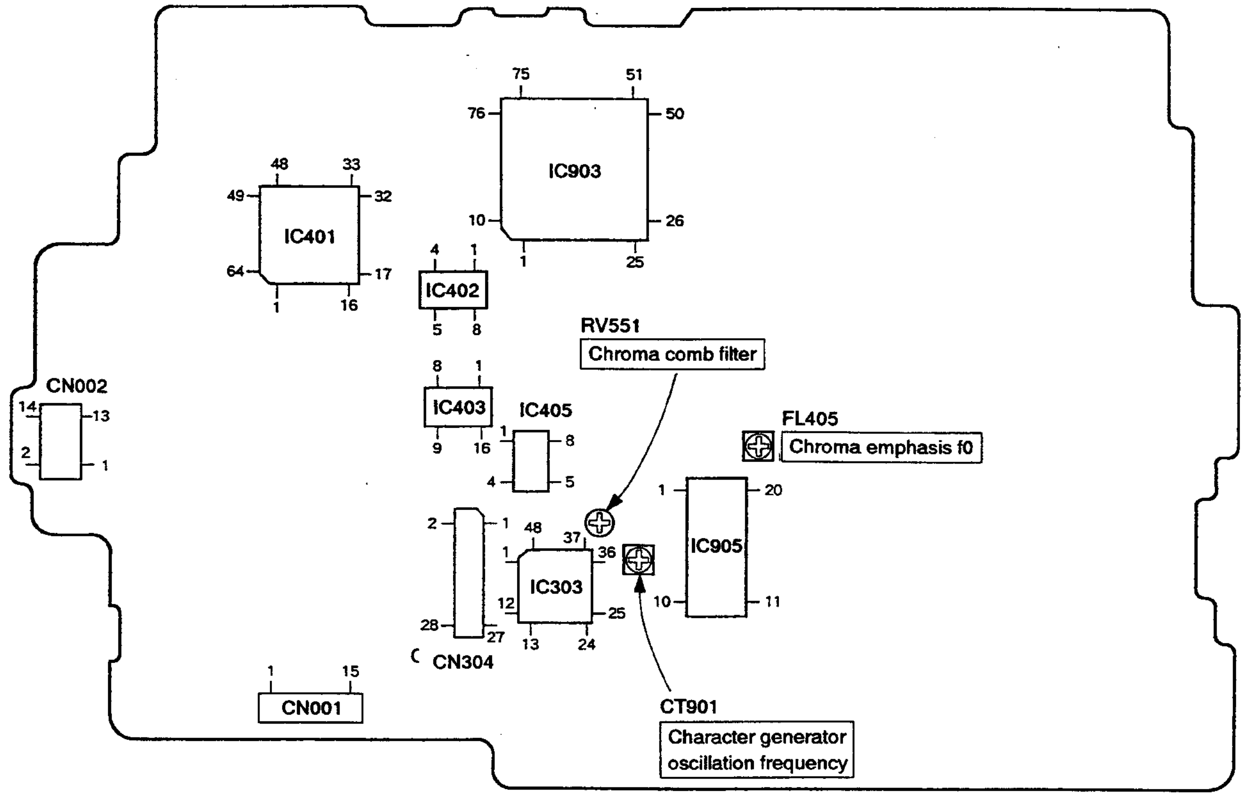
DD-54 BOARD (COMPONENT SIDE)


CN351
6
1
30
2
CN352
29
1

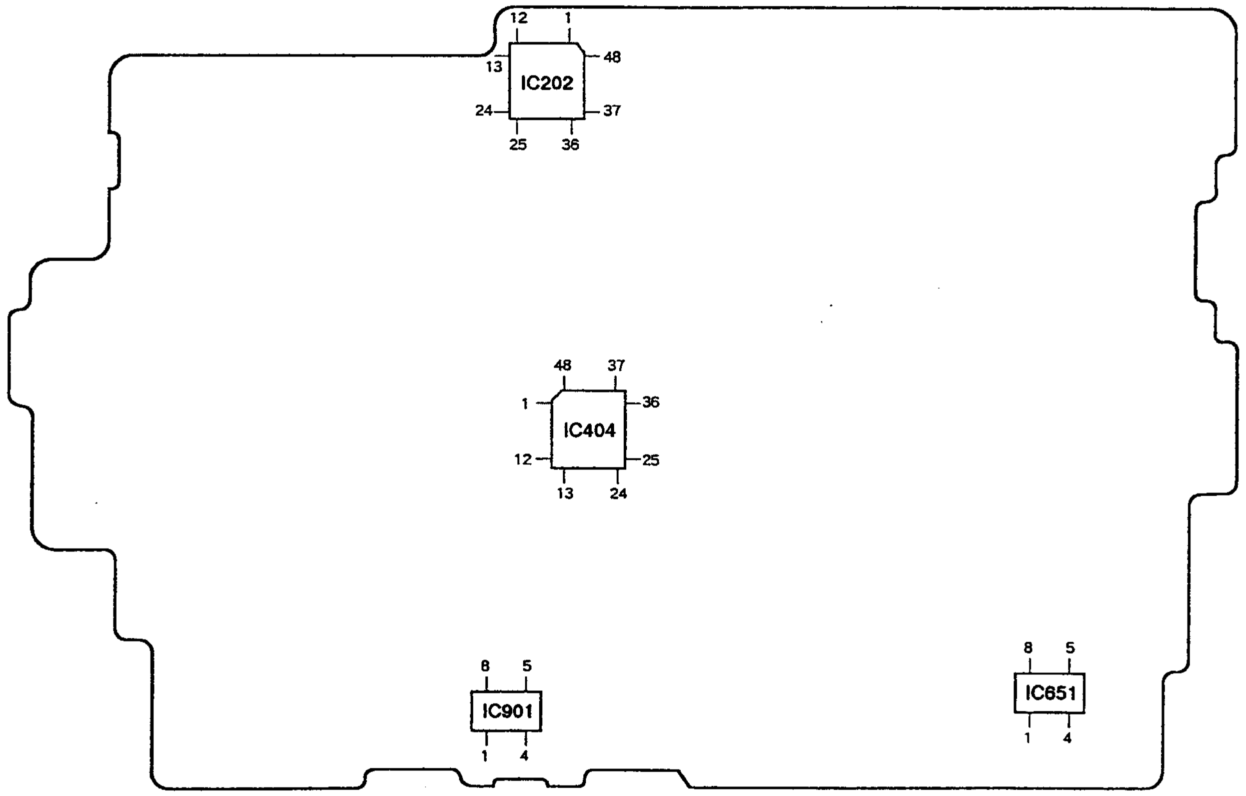
DD-54 BOARD (CONDUCTOR SIDE)


24
13
25
12
IC351
36
1
37
48
5
4
Q355
1
2
3

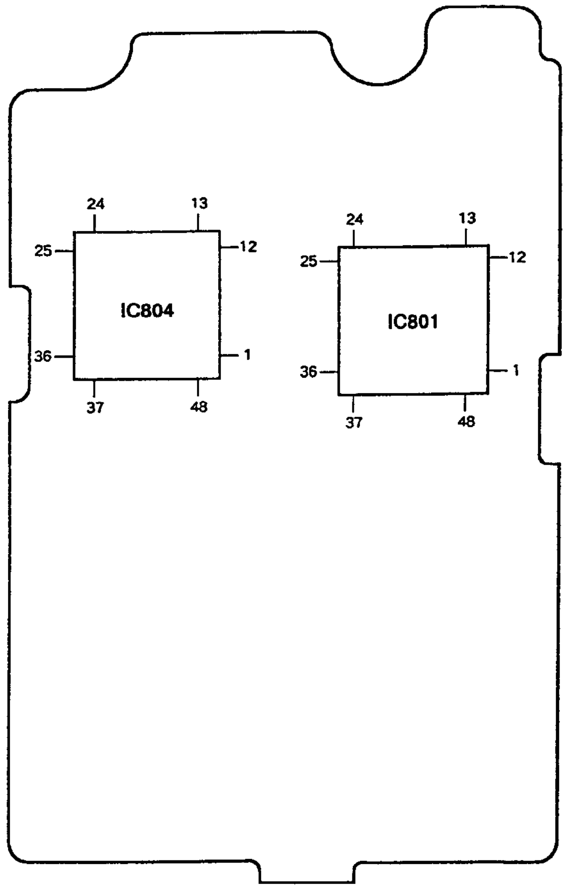
VC-129 BOARD (COMPONENT SIDE) A SIDE


75
51
76
50
IC903
10
26
1
25
48
33
49
32
IC401
64
17
1
16
4
1
IC402
5
8
RV551
Chroma comb filter
8
1
IC403
9
16
IC405
1
8
4
5
CN002
14
13
2
1
FL405
Chroma emphasis f0
1
20
IC905
10
11
2
1
48
37
36
IC303
12
25
28
27
13
24
CN304
1
15
CN001
CT901
Character generator
oscillation frequency

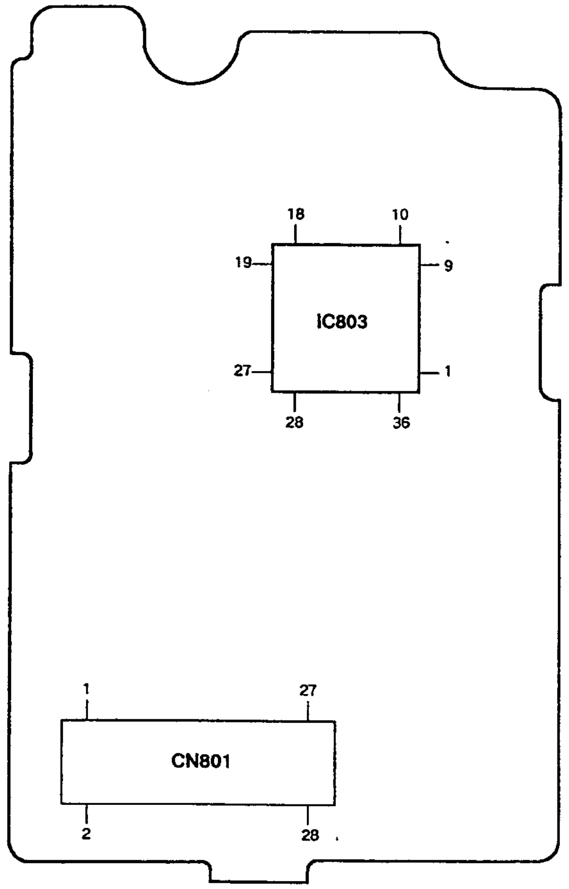
VC-129 BOARD (CONDUCTOR SIDE) B SIDE


12
1
13
48
IC202
24
37
25
36
48
37
1
36
IC404
12
25
13
24
8
5
IC901
1
4
8
5
IC651
1
4

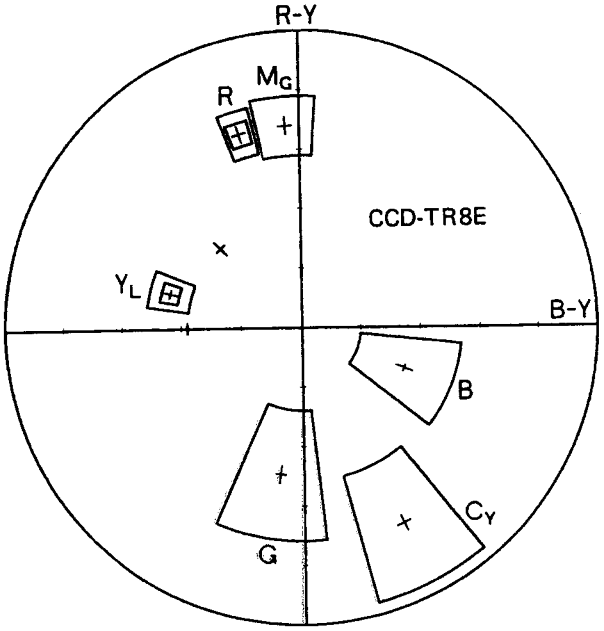
AU-146 BOARD (COMPONENT SIDE)


24
13
25
12
IC804
36
1
37
48
24
13
25
12
IC801
36
1
37
48

AU-146 BOARD (CONDUCTOR SIDE)

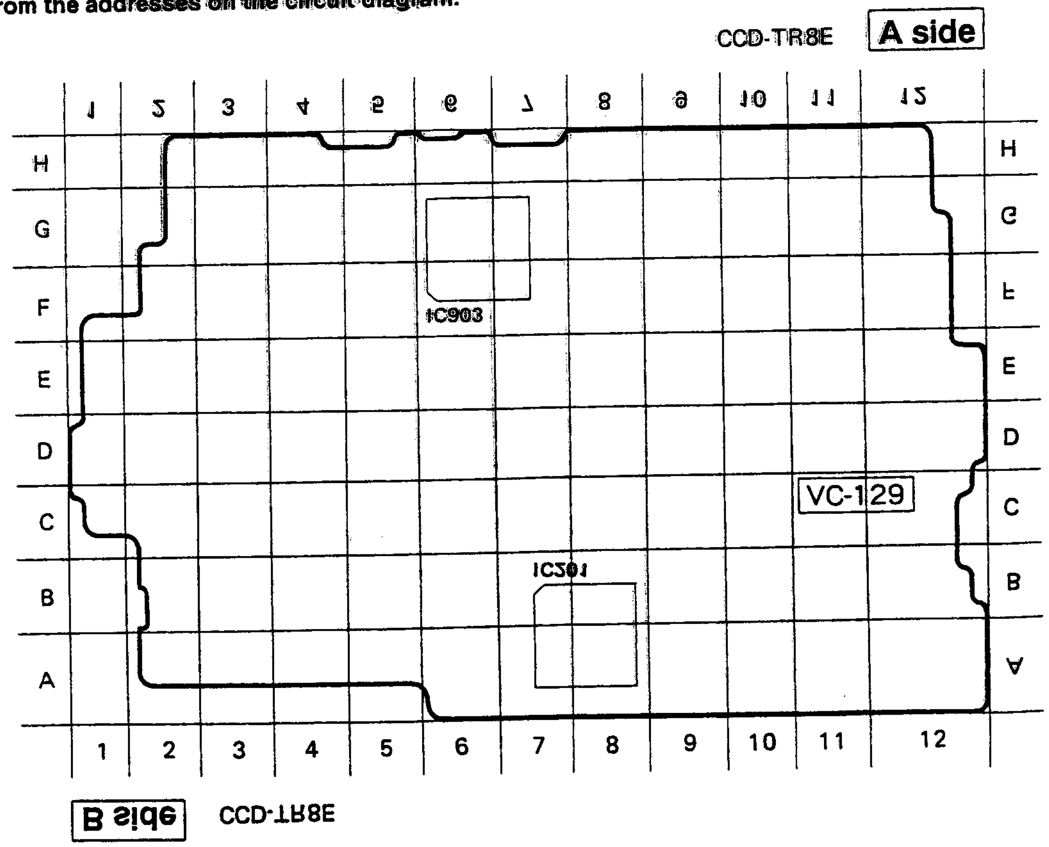

18
10
19
9
IC803
27
1
28
36
1
27
CN801
2
28

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT


R-Y
B-Y
R
M_G
Y_L
B
C_Y
G
CCD-TR8E

[Parts Detection Sheet]

By placing it over the VC-129 board, the positions of the parts can be located from the addresses on the circuit diagram.


CCD-TR8E
A side
1
2
3
4
5
6
7
8
9
10
11
12
H
G
F
E
D
C
B
A
IC903
IC201
VC-129
B side
CCD-TR8E

9-973-319-11

Sony Corporation
Personal Video Group

English
92K0986-1
Printed in Germany
© 1992. 11
CV Quality Engineering DIV.

CCD-TR8E
RMT-703

SONY
SERVICE MANUAL

AEP Model
UK Model
Australian Model
E Model
Tourist Model

CORRECTION-1

Please correct your service manual.

PAGE 225

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. ~~(The data of these pages can be set temporarily. When the main power supply (6.3V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)~~ **(Delete)**

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

PAGE 272

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of ~~page 0,~~ Page 1, **(Correct)** address 00 to 01.

PAGE 276

8. White balance mode switching

Page 2	Category ~~00~~ 01 **(Correct)**	Address 21

PAGE 276

9. Zoom position check

Page 2	Category ~~00~~ 01 **(Correct)**	Address 2B, 2C

PAGE 264

Additional notes on adjustment
After the completion of the all adjustments, cancel the adjustment mode by either of the following ways.

(1) Unplug the main power supply and remove the lithium battery. (In this case, date, time and menu settings have been set by users are canceled. Perform resetting.)
(2) Return data of the address:00 on page:1 to 00. And when data on page:2 is changed, return the data to the original condition.

(Stick it at lower right space.)

Cut along the dotted line.

9-973-319-91

Sony Corporation
Personal Video Group

English
93F0908-1
Printed in Germany
© 1993. 6
Published by CV Quality Engineering DIV.

CCD-TR8E
RMT-703

9-973-319-11
9-973-319-81 Correction-1
9-973-319-91 Supplement-1

Sony Corporation
Personal Video Group
Printed by: Schaltungsdienst Lange, Berlin (GERMANY)

English
92K0986-1

© 1992. 11
CV Quality Engineering DIV.